DOMESTIC ENGINEERING

TD1*
D66
v.14-4

PUBLISHED AT
1900 PRAIRIE AVENUE
CHICAGO

NOVEMBER
1 9 3 4

Plumbing & Heating Contracting and Merchandising

ALL YOUR PIPE REQUIREMENTS *with* J&L QUALITY

J&L Steel Pipe is straight and free from excess scale and injurious defects. It has accurate, clean-cut threads and the couplings are sound and correctly tapped. Galvanizing is thoroughly done, and it will not flake off.

The user enjoys the full advantage of these features because the steel—produced under complete J&L ownership control—is of such uniformly high quality. It is the medium which preserves the superiorities of pipe manufacture and assures excellent performance.

J&L Steel Pipe is supplied, black and galvanized, in a full range of standard weights and sizes: welded ⅛" nominal to 16" O.D. inclusive, seamless ½" nominal and larger. J&L Copper Steel Pipe can be supplied where increased resistance to atmospheric corrosion is required. J&L Hot Rolled Seamless Steel Boiler Tubes are furnished in a full range of standard sizes, from 1" O.D. to 6" O.D. inclusive.

WELDED AND SEAMLESS

J&L CONSTRUCTION PRODUCTS
LIGHT WEIGHT ROLLED CHANNELS
JUNIOR BEAMS — STEEL PIPE
BARS for CONCRETE REINFORCEMENT
STANDARD STRUCTURAL SHAPES
STEEL PILING — NAILS — TIE WIRE
FABRICATED STRUCTURAL WORK
including Steel Plate Construction

Write for a copy of the 88-page J&L Pipe Handbook. No charge or obligation.

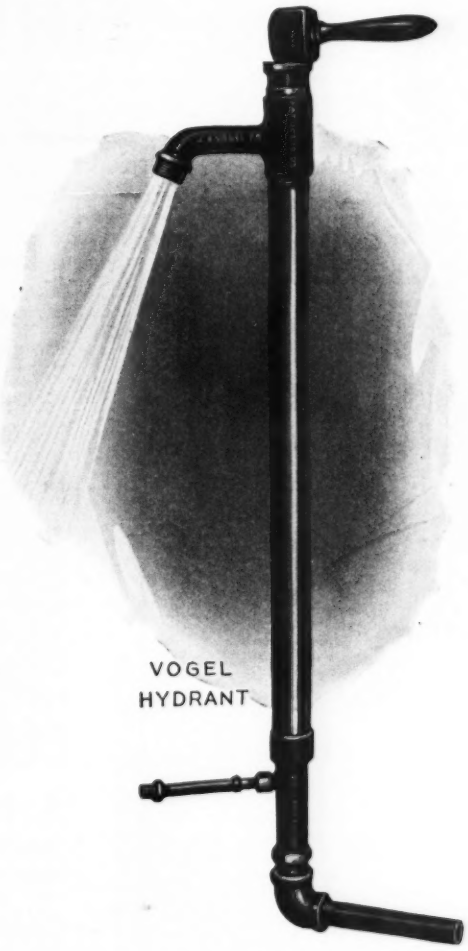
J&L PIPE

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA
Sales Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Erie, Los Angeles, Memphis, Minneapolis, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Warehouses: CHICAGO, CINCINNATI, DETROIT, MEMPHIS, NEW ORLEANS, PITTSBURGH
Canadian Representative: JONES & LAUGHLIN STEEL PRODUCTS COMPANY, Pittsburgh, Pa., U. S. A., and Toronto, Ont., Canada

GARAGE OWNERS ARE REAL PROSPECTS FOR VOGEL *FROST-PROOF* HYDRANTS . . . . THIS YEAR

After last winter, people want the convenience of a water supply in the garage that can never freeze, no matter how cold the weather.



Vogel Frost-Proof Hydrant. Insures a supply of water outside the house winter and summer.

THE installation of a Vogel Frost-Proof Hydrant, which costs so little, *guarantees* that you will always have water on hand for washing the car or filling the radiator. It can never freeze or stop up, and is so sturdy in construction that it will last indefinitely. Call on garage owners now, or write us for literature imprinted with your name and address. It's a chance for easy extra profits.

No. 4—Best-looking frost-proof closet made. Vitreous bowl, top supply.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. · St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* PRODUCTS

Established 1889

O. T. CARSON
President and Treasurer

E. DE FOREST WINSLOW
Vice President

D. J. HANSEN
Secretary

EDITORIAL STAFF
R. V. Sawhill,
Editor

R. Herlov, L. W. Britton,
Wm. W. Gothard,
Associate Editors

R. M. Starbuck, Jr.,
Consulting Editor on Plumbing

ADVERTISING REPRESENTATIVES
E. G. Hutchison
Douglas M. Kenney
H. J. Carr
A. T. Papineau
J. U. Farley
H. M. Thompson

FIELD REPRESENTATIVES
T. H. Craige, G. F. Hagendorn,
John R. Lewis, E. W. Barnes

BRANCH OFFICES
NEW YORK—
Room 819, 110 East 42nd St.
42nd St.

CLEVELAND, OHIO—
310 Citizens Building

TERMS OF SUBSCRIPTION
Anywhere in the World, $2.00 per year.
Current copies, 25c each
Back numbers, 50c each

Entered as Second Class Matter on September 26, 1932, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

Copyright 1934, by Domestic Engineering Co.

Member of Audit Bureau of Circulation and Associated Business Papers

DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Vol. 144. No. 5

Whole No. 2000

Published Monthly by
Domestic Engineering Co.
1900 Prairie Avenue, Chicago

NRA CODE

NOVEMBER, 1934

	Page
It Happened This Month!	38
Start National Advertising of Qualified Plumber	40
October Winners of DOMESTIC ENGINEERING Prizes	42
How to Enter Our Prize Campaign	44
FHA Makes Remodeling Business	45
Plumbing Contractors Sell Water Supply Systems	47
Sanitary Facilities for Subsistence Homesteads Projects. By R. M. Starbuck, Jr.	48
Dolan and Olson Learn How to Collect Their Accounts Without Usual Delays	50
He Sells Idea of Fix It Now or Else Pay Double	52
Estimating. By A. E. Knibb	55
Support Calnan on Health. By Chas. M. Swinnerton	56
Why Water Should Be Treated	58
Code of Fair Competition for the Industry of Wholesaling	59

AUTOMATIC HEAT AND AIR CONDITIONING SECTION

The Battle of Fuels. By P. H. Erbes, Jr.	73
Shooting Trouble on a New Oil Job	74
How to Compare Cost of Heat by Degree Days. By Arthur Branch	77
County Fair Display Sells Burners and Gets Prospects	79
How to Figure Air Conditioning Demands for Stores and Shops. By Harold L. Alt	80
Pointers on Electricity for the A. H. & A. C. Dealer. By O. W. Thomas	83
To Save Burner Business for Dealers. By Arthur W. Clark	85
Automatic Heat and Air Conditioning Questions	91
Products for the Dealer	99

SPECIAL DEPARTMENTS

Editor's Page	34
Our Industry	37
Questions and Answers	68
Supply News	117
New Products for Store, Shop and Job	125
The Trade	133
Women's Page	149
Plumbing and Heating Patents	155
Index to Advertisers	162

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 3, No. 1

TRADE GETS NICE SLICE

PLUMBING PLAYS BIG PART IN MODERNIZATION

F.H.A. Drive Making Good Progress

CHICAGO FAUCET CO. PRODUCTS FIT SPIRIT OF PROGRAM

Now that the home modernization program is well under way, it becomes more and more apparent what a large place plumbing is to have in the modernization scheme. It is clear that to whatever extent the program ultimately may go, plumbing will constitute a large slice of the total outlay. Of the 13,000,000 buildings in need of repairs, it is safe to assume that practically all need some measure of plumbing rehabilitation. A recent survey reveals 29 per cent of the city dwellings are without either bathtub or shower.

WE ARE CO-OPERATING
BETTER HOUSING PROGRAM

It is the policy of all agencies interested in the modernization drive to encourage the making of high grade, lasting improvements. And in line with this, plumbers should carefully consider the specialties manufactured by The Chicago Faucet Company. Modern in design, advanced in operating principle and made of the highest quality brass with lasting chromium finish, these faucets and fittings insure lifetime trouble-free service. Plumbers should have The Chicago Faucet Catalog at hand. Catalog and price list will be mailed immediately on request.

Stock Yards Fire Destroys All But Desire for Chicago Faucets

Among the buildings practically destroyed in the disastrous fire that swept the Union Stock Yards at Chicago on May 19, 1934, were the Stock Exchange building and the Stock Yards Inn.

When these were rebuilt, the owners insisted that the new Chicago Faucets should be "exactly the same kind" as had been in service before the fire.

In the Stock Exchange building, there had been 263 pairs of Naiad Push Button Faucets in service since 1923. These had given such splendid trouble-free operation for 10 years that 200 pairs of Naiads were ordered to equip the restored building.

The Stock Yards Inn had been equipped throughout with self-closing lavatory faucets and here too the record was so satisfactory after years of service that 200 Klo-Self faucets were specified for the re-equipment.

This instance is merely typical of many similar, where men who have had long experience with Chicago Faucets are so well satisfied with them that they like to always be sure of having "exactly the same kind." Primarily, it's the operating principle, the famous standardized interchangeable unit with its renewable feature, but also it's the sturdy, life-time construction which serves to complete the ensemble that places Chicago Faucets in a separate, superior class when it comes to service.

It takes something like the great Stock Yards Fire to knock out Chicago Faucets.

NEW ATTACHABLE SOAP DISH BOON TO SHOWER BATHERS

One of the minor irritations attendant on shower bathing in the average home, apartment or hotel is the difficulty of disposing of the soap while not in use. Shower curtains hanging inside the tub preclude the use of tub-rim soap dishes and in many tubs, particularly tubs on legs, there is little or no room to lay soap on the ends of the tub.

In recognition of the need for a dish for soap in connection with bath tubs served by an exposed shower fixture, The Chicago Faucet Company has just introduced the attachable soap dish illustrated above.

As can be seen, this new soap dish attaches to any ½-inch pipe by means of a two-part clamp held by a screw at either end. Adaptable to laundry supply pipes as well as shower riser. It can be set at any height dictated by convenience. The soap dish proper lifts off the arm for easy cleaning, and is 3¼ by 5½ inches in size. The whole attachment is chromium plated.

There is without question a ready market for this attachable soap dish, and plumbers will find that merely to display it will bring sales. In order to introduce the item broadly, plumbers and jobbers may place initial orders for one or more subject to approval. Live merchandisers will not pass this specialty by.

CARRY NECESSARY REPAIRS FOR SIX FAUCETS IN POCKET

There is so little about Chicago Faucets to ever require replacement as the result of wear, that complete materials for seat and washer renewals for six can easily be tucked into the vest pocket. These consist of 6 monel metal seats and 6 seat washers, together with a small wrench for removing the operating unit.

To renew any of these parts takes but a few seconds, and such renewals *a r all* the "repairs" a Chicago Faucet usually needs. While these small renewal seats seem small and light, as they assuredly are, they are

monel metal and constitute the very heart of Chicago Faucets, with their record of requiring less attention than any other faucet made.

For the jobber or plumber carrying a stock of Chicago Faucets, the One-minute Repair Kit or the Junior Repair Kit prove handy sources of complete assortments of parts.

Now that the foot-ball season is on, we hear a lot about the sturdy fighting heart of this hero of the moment or of that one. Three years are as long as they last. But consider the "sturdy fighting heart" of Chicago Faucets—the famous Quaturn operating unit. It lasts as long as the building.

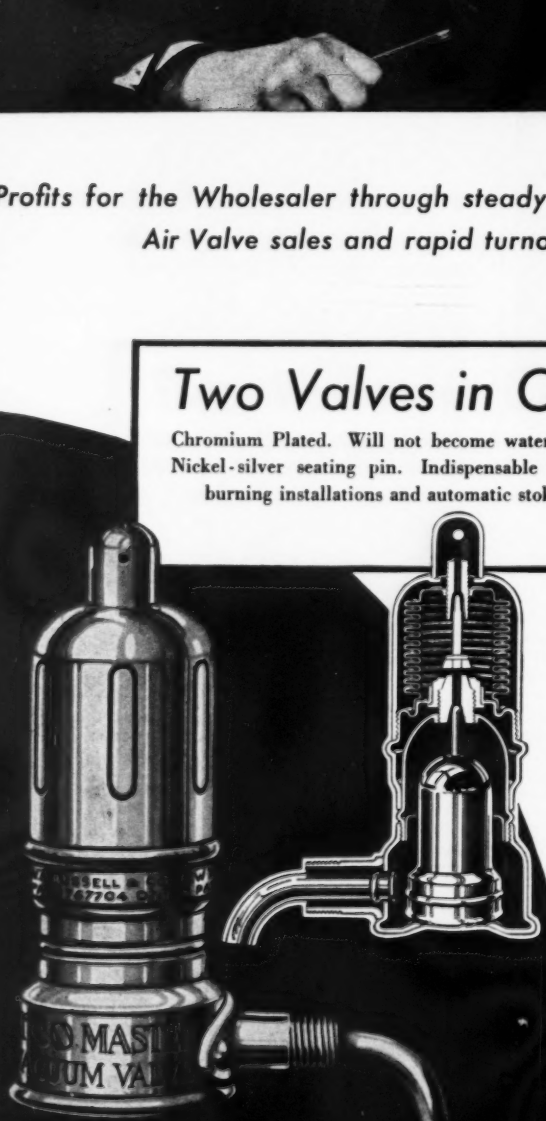
PROFITS for all three in

Profits for the Wholesaler through steady Air Valve sales and rapid turnover.

Profits for the Heating Contractor through easy installations and paying jobs all winter.

Two Valves in One

Chromium Plated. Will not become water-logged. Nickel-silver seating pin. Indispensable for oil-burning installations and automatic stokers.



WARCO MASTER 2M
VACUUM VALVE
(½ side outlet for radiators)

The only valve that vents and vacuumizes

in two separate and distinct operations

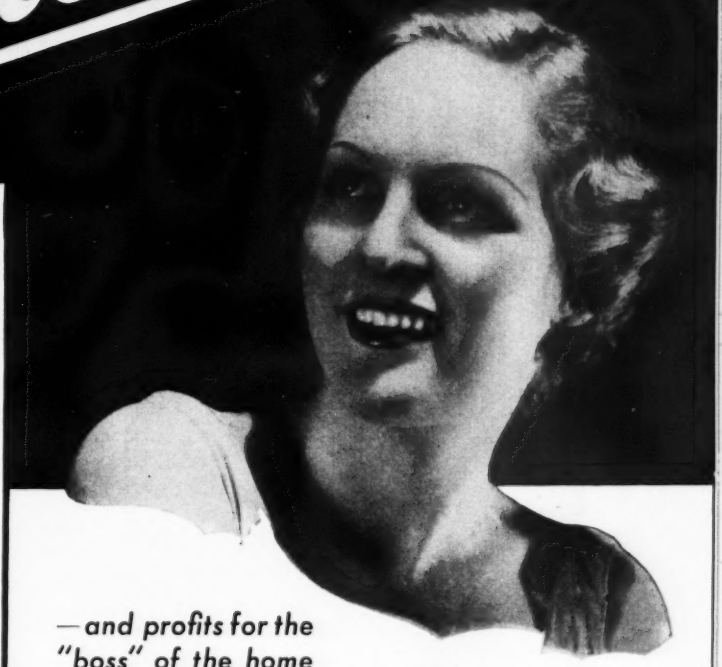
Simplified action, quicker venting, quicker vacuumizing, less pressure at the boiler.

Note the interior of this unusual vacuum valve. As steam advances from the boiler, the *lower or venting section* of the Warco Master 2M Valve empties all air from the radiator. As the system cools, condensation creates a vacuum. The sensitive vacuum bellows in the *upper section* of the valve is pushed down by outside air pressure, sealing the valve against return of air.

The two operations take place independently of each other by virtue of the *double chamber*. The Warco Master 2M Vacuum Valve is the fastest venting valve on the market. It is the most rapid and efficient vacuumizing valve in existence.

BRINGS ONE-PIPE STEAM SYS

in this famous "Modernizer"



—and profits for the "boss" of the home —through smaller fuel bills, and radiators that are ALWAYS HOT. She now saves over 25% in fuel.

WARCO VACUUM VALVES have been busy for years modernizing heating equipment. Cold, balky radiators all over the land have been quickly brought to life by these remarkable fuel-savers.

Now, with loans on remodeling work so easy to obtain through the National Housing Act, heating and plumbing contractors are finding it easier than ever to secure these profitable vacuumizing jobs.

One-pipe steam systems are quickly changed to vacuum systems, radiators become hot all over and stay hot long after the fire is banked—all by putting Warco Vacuum Valves on the radiators and mains.

For the owner, *big savings of fuel.* For the heating contractor, easy installations with good profits all winter.

Get busy and go after some of these remodeling dollars. Tell the one-pipe steam owners in your neighborhood the Warco story. They will be grateful for every radiator you start working and every cold room you make warm and comfortable.

In oil burners, consumption of oil has been reduced 25% to 33 1/3% by the Warco Master 2M Vacuum Valve. Place a trial order for a dozen or so of these Valves with any recognized Wholesaler.

W. A. RUSSELL & CO., *Established 1890*
Grand Central Terminal Bldg., New York, N. Y.

WARCO JUNIOR 2-J VACUUM VALVE

This is a smaller valve than the Master 2M. Lower priced for those households that have to watch their pennies and dimes. An excellent Vacuum Valve, sensitive bellows-type, with non-corrosive nickel-silver seating pin. Backed by the standard one-year Warco guarantee.

⅛" side outlet for Radiato

WE ARE CO-OPERATING
BETTER • HOUSING • PROGRAM

Warco
MASTER 2M Vacuum Valve

YSTEMS UP TO DATE

D-11

W. A. RUSSELL & CO., Grand Central Terminal Bldg., N. Y.
Please send information and prices on Warco Master and Warco Junior Vacuum Valves—also on complete line of Warco Valves for every air-valve need.

*Firm Name*_____

*Address*_____

*City*_____ *State*_____

LITTLE THINGS *for* BETTER HOUSING *-and More Profit*

Every F. H. A. job you work on, every contact you make with a home-owner, opens the door to a number of small but highly profitable sales. The best part of it is, these extra sales almost make themselves. Just keep your eyes open and drop a suggestion when opportunity affords. At the end of the week it will mean a good many extra dollars for you.

For instance, replacement crosses for tub, shower or lavatory. The amount involved is small—most home-owners will say "O. K." without argument. A new ball cock—an ACE for quiet, positive action—sells itself where your ears tell you the present one is not shutting tight. A few words about water bills does *that* trick. New faucets, of course, are right in line with rehabilitation programs.

Nibco makes all these items, and they're all quality goods—priced to sell, sold to give you a fair profit. And for your remodeling and repair work you'll want Nibco fittings for copper tube plumbing. The Nibco trademark is your assurance of customer satisfaction that will last long after the moderate cost has been forgotten.

NIBCO

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

Ask for *Fittings by Nibco*

If Every Plumber Could Listen . .

Only Si-flo combinations would be installed . . .*

THEY ARE QUIET!

It is really difficult to imagine that any flush valve combination could be so quiet as the Si-Flo. *It is practically noiseless.* While the Si-Flo valve, itself, has eliminated all the hissing noises and the "bump" which usually occur when a flush valve is operated; the construction of the bowl does not permit any gurgling or water noises to form. In addition to being quiet however, both the valve and bowl set a new example of efficiency. The rate of water flow from the valve to the bowl is only from 15 to 18 gallons per minute. Most bowls require a rate of flow of about 25 gallons per minute to syphon properly. The trap-way of the bowl will easily pass a 2⅛-inch diameter ball. Bowls are hygienic height — 14 inches. Furnished in regular or elongated types and in all colors with seats matching.

Complete data on the Si-Flo Valve and Combination together with roughings-in will be sent promptly.

SPEAKMAN COMPANY
Wilmington . . . . . Delaware

K-1001—SPEAKMAN Chromium Plated Si-Flo Closet Flush Valve. With 1" capped angle stop for right or left inlet, wall flange, metal oscillating handle, flush connection, spud coupling nut and flange for 1½" top supply. (*Patented*)

The compact piston unit. The only moving part of the Si-Flo Valve. This unit can be replaced in five minutes at a nominal cost.

* *Name, meaning Silent Flow, registered U. S. Pat. Office*

SPEAKMAN *Showers & Fixtures*

YOU CAN GET A SLICE OF THIS $1,500,000,000 IF YOU GO AFTER IT

THE National Housing Act has been created to throw $1,500,000,000 into real estate improvements. The plumbing industry is going to get its share largely through bathroom and kitchen work: remodeling, modernization, additional facilities.

You'll find a talking knowledge of the Act will help you sell improvement work. Get a copy. Read it through. Be able to talk it over with your prospects—especially the section pertaining to modernization and replacement. Remember, N.H.A. loans are going to make possible lots of work that couldn't otherwise be financed.

Discuss the Act with your local N. H. A. committee, or with the banks and other co-operating financial institutions.

Then—dress up your windows, prepare your advertising carefully, and go out to *sell*. Now is the time to act if you want your share of that big billion and a half.

SCOVILL

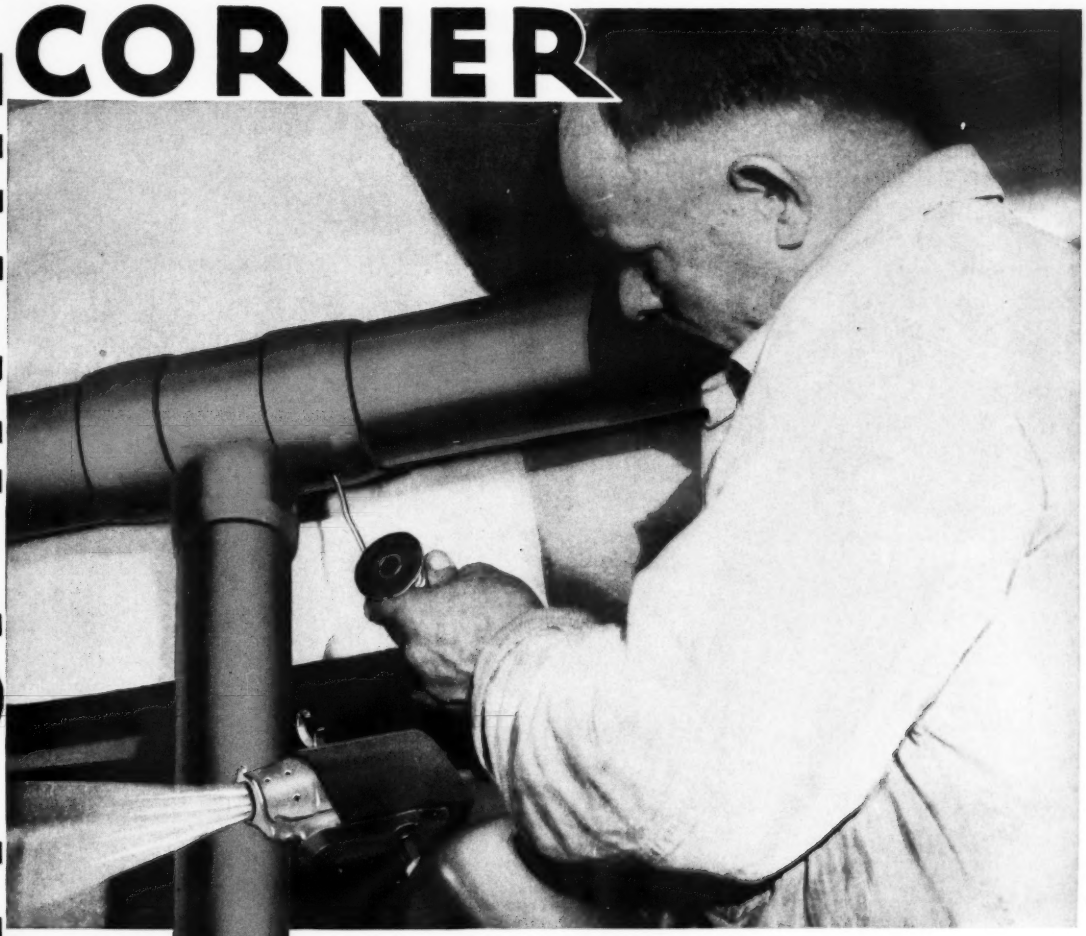
SCOVILL MANUFACTURING COMPANY

PLUMBERS' BRASS GOODS DIVISION

WATERVILLE CONNECTICUT

Scovill Flush Valves, Shower, Bath and Lavatory Fittings • Miscellaneous Plumbers' Brass Goods

RIGHT UP IN THE CORNER



Asbestos Sheet Used Back of Job Prevents Scorching

A PERFECT JOINT

One of the many advantages of STREAMLINE products is the fact that they require a very minimum of space. STREAMLINE Fittings, although producing enormously strong joints, are very little larger than the pipe lines which they connect. They do not protrude like screw type fittings. They can be readily installed close up to walls, ceilings, or partitions and in places otherwise inaccessible, because no room is required for wrench grip or wrench swing. The fitting is located exactly where required and soldered.

The Joint May Be Made From Any Position

It does not make the slightest difference where the solder feed hole is located when making a connection, the solder will feed just as readily from the side or bottom as from the top. Capillarity always functions with the correct tolerance and cleaned, fluxed surfaces. THE PLUMBER CAN MAKE A PERFECT JOINT FROM ANY POSITION.

Send for our Catalog F and Solder Instruction Card

STREAMLINE PIPE AND FITTINGS

PORT HURON, CO. MICHIGAN

DIVISION OF MUELLER BRASS CO.

YOUNGSTOWN PIPE

For Permanence
For Ease of Installation
For Real Economy

THE YOUNGSTOWN SHEET
AND TUBE COMPANY
Manufacturers of Carbon and Alloy Steels
General Offices YOUNGSTOWN, OHIO

This new catalog takes them apart for you

Pat. 1,970,105
Other Pats. Pending

We invite every man who specifies, sells, installs or uses heating equipment to see how Fedders Series 3 Unit Heaters are Built as Good as They Look.

See why Series 3 one-piece, electrically welded cabinets are not only handsome but *unusually sturdy*.

See how Fedders streamline tubes provide higher heat transfer efficiency.

See how headers are baffled to assure even steam distribution across the width of the heating element.

See how Full-Floating Mountings absorb expansion and contraction stresses, maintain perfect alignment of element in cabinet, and protect element from piping strains.

See how quieter operation is secured through Fedders streamline tubes, patented fin construction, graduated pitch fans, resilient motor mountings, and sturdy cabinets which eliminate resonance and isolate vibration.

Send the coupon and see how this catalog takes Fedders Series 3 Unit Heaters apart for you.

FEDDERS
MANUFACTURING CO.
57 Tonawanda St. Buffalo, N. Y., U. S. A.

FEDDERS MANUFACTURING CO., Buffalo, N. Y.
Yes I would like to see how your Catalog 527 takes your Series 3 Unit Heaters apart for me.

Personal Attention of Mr.....

Concern .....

Business .....

Street..... City.....DE-11

Send
This Coupon
AND SEE THEM TAKEN APART

"Here's one Roof Flange that's got . . . EVERYTHING!"

THE EAGLE-PICHER LEAD COMPANY
CHICAGO • JOPLIN • CINCINNATI

1 It is all lead—one piece—strongest construction—built heavy to stand abuse and stretching.

2 No blowholes or laminations—made under 100-lb. pressure.

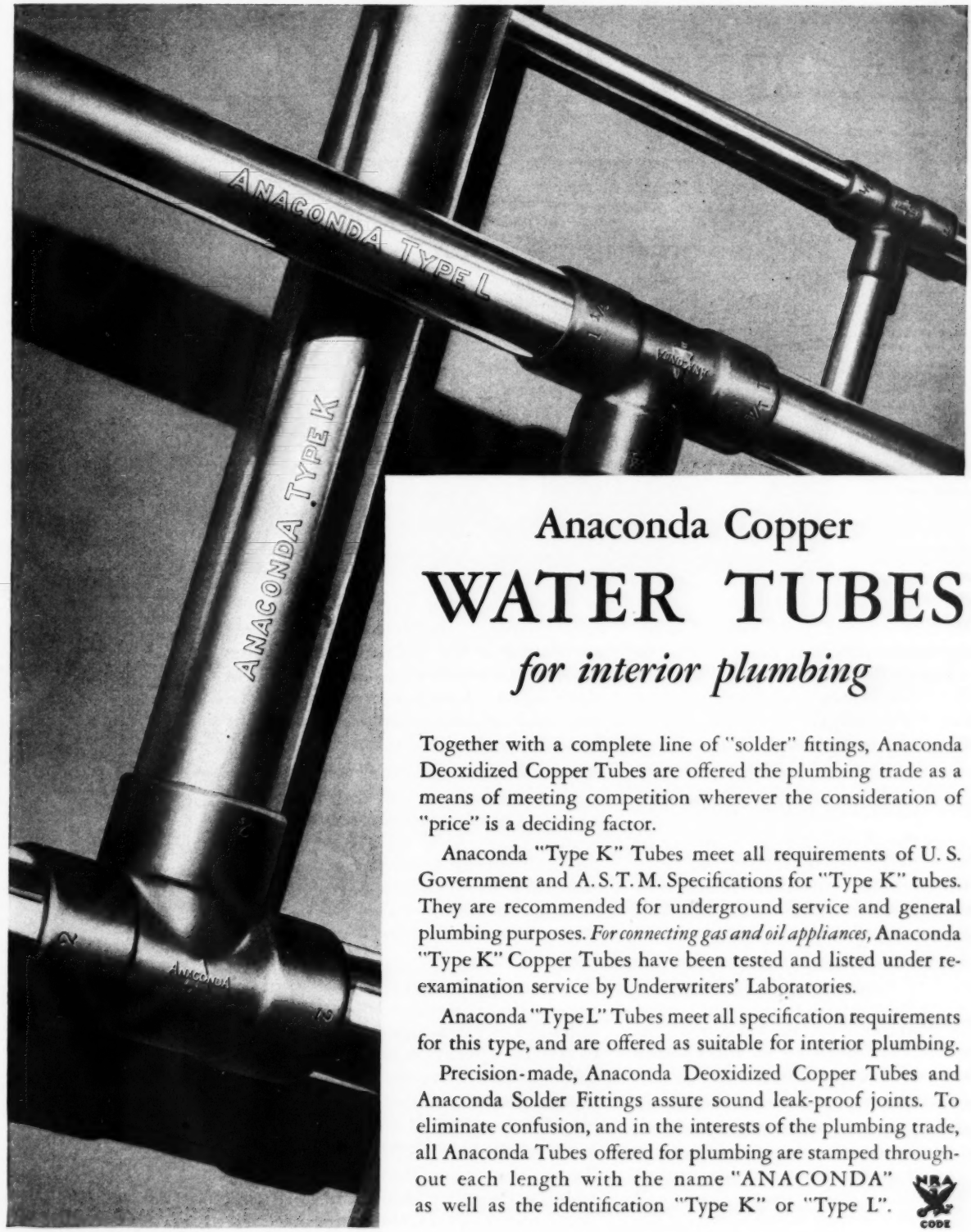
3 Easy to adjust—pliable and ductile—feather edge on boot.

4 Easy to handle—rounded corners.

use EAGLE super FLANGE

Boost the Better Housing Program in your community. It means new business for enterprising plumbers.

BETTER HOUSING PROGRAM



Anaconda Copper

WATER TUBES

for interior plumbing

Together with a complete line of "solder" fittings, Anaconda Deoxidized Copper Tubes are offered the plumbing trade as a means of meeting competition wherever the consideration of "price" is a deciding factor.

Anaconda "Type K" Tubes meet all requirements of U. S. Government and A. S. T. M. Specifications for "Type K" tubes. They are recommended for underground service and general plumbing purposes. *For connecting gas and oil appliances,* Anaconda "Type K" Copper Tubes have been tested and listed under re-examination service by Underwriters' Laboratories.

Anaconda "Type L" Tubes meet all specification requirements for this type, and are offered as suitable for interior plumbing.

Precision-made, Anaconda Deoxidized Copper Tubes and Anaconda Solder Fittings assure sound leak-proof joints. To eliminate confusion, and in the interests of the plumbing trade, all Anaconda Tubes offered for plumbing are stamped throughout each length with the name "ANACONDA" as well as the identification "Type K" or "Type L".

NRA CODE

ANACONDA
from mine to consumer

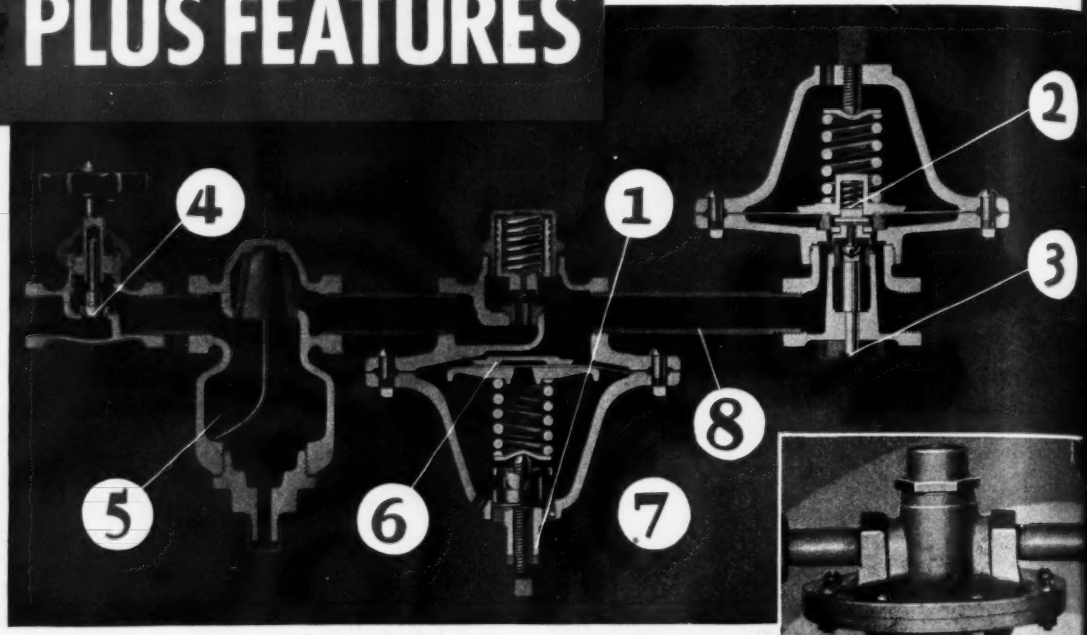
THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

ANACONDA COPPER & BRASS

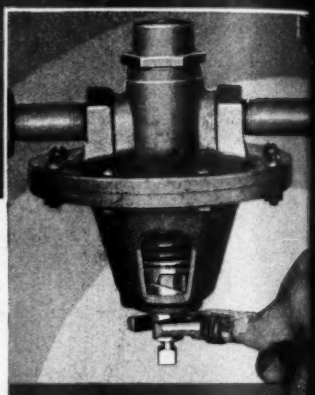
YOU PAY NO MORE *for these* PLUS FEATURES

Only the MUELLER SYSTEM Combines These Features

1. Quick filling attachment that cuts installation time from hours to minutes.
2. Auxiliary spring that gives relief valve "hair line" responsiveness.
3. Easy testing feature that assures dependable operation.
4. Wider opening stop and check valve.
5. Finer, more efficient strainer.
6. Bronze diaphragms of practically twice the area of those used in any other equipment of this type.
7. All exposed parts are Mueller Bronze.
8. Separate units permit economical replacement and maintenance.



PATENTS PENDING



EASY TO FILL

A feature that saves hours of tedious d quarter turn of a wrench opens the re wide. When the system is filled, a furth snaps it back to normal operation.

FOR many years thousands of heating contractors have been willing to pay a few dollars more for the big red Mueller System for regulating hot water heating. Obviously they would not have been willing to *pay* more unless they had found that the Mueller System *gives* more—more service—more safety—more satisfaction to their customers.

But now the Mueller System offers in addition to the features that you have known so well, a number of new and revolutionary features—features that set a new standard for equipment of this type.

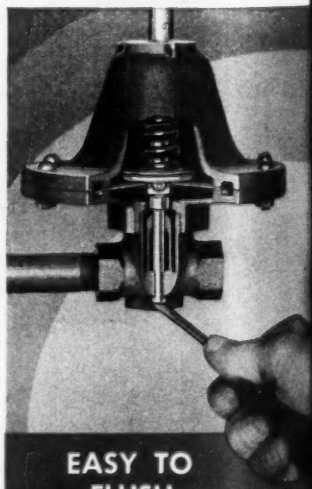
In spite of these many improvements there has been no increase in the price of the Mueller System—the only increase is the increase in solid value to you and your customer.

Compare the Mueller System of today with other equipment of this type. First, look at the quick filling attachment illustrated at the right. The amount of labor saved by this feature alone will easily offset the difference between the price of the Mueller System and the conventional type. Note how the spiral cam enables you to fill the heating system in a few minutes. A quarter turn of a wrench and the regulator is wide open. Another quarter turn in the same direction and the valve snaps back to normal adjustment.

Also note the auxiliary spring (2)—a new method of closing the relief valve. This ingenious construction tranfers the load of the heavy diaphragm spring from the seat disc to stops in the body of the valve as shown in the sectional view above. As a result, the relief valve is the most sensitive ever devised.

No less important is the provision for easy testing illustrated opposite. It enables the owner to open the relief valve to test its operation and flush out the seat. Another refinement is the new type plunger in the combined stop and check (4) which gives it a wider opening with a quick response in operation.

Remember that these features are added to the other Mueller betterments listed above. Make this your final reason for recommending and installing the super-value Mueller System.



EASY TO FLUSH

Simply insert a screw driver under the and pry up to test valve or flush it. This vision for testing meets the A. S. M. E. requirements.

MUELLER CO., *Decatur, Ill.*

Factories: Decatur, Ill., Chattanooga, Tenn., Los Angeles, Calif., Sarnia, Ont.
Branches: New York and San Francisco

MUELLER SYSTEM

Stocked by your Plumbing and Heating Supply Jobber

Business is Better

EVERY town and city in America is planning modernization of homes, stores, and public buildings. This flood of prospective business is a challenge to the plumbing industry. Will you get your share of these dollars?

You *can* do it, Mr. Plumbing Contractor . . . by alert salesmanship, by the use of good materials, your good workmanship, and adherence to fair prices. As for the material, Revere Copper Water Tube will help you on all counts.

Good Materials Revere Copper Water Tube does not rust or deteriorate . . . used with Streamline soldered Fittings, the finished job presents a trim and modern appearance that is well worthy of your skill.

Good Workmanship This tube helps you do good work. For exposed piping, the Hard Temper tube is rigid enough to give long, sagless runs . . . yet it can be quickly and accurately bent with an inexpensive hand-operated tool. The Soft Temper tube can be worked through walls with no trouble.

Fair Prices By using Copper Water Tube, you give your customer the best possible value in piping material . . . you save him money because there is less tearing up . . . and you get a fair margin of profit.

Revere Copper Water Tube is a cold drawn seamless tube, 99.9% pure copper, for water supply and other uses. It is completely deoxidized and possesses a gun-barrel finish inside, free from flaws and blemishes. Used with Streamline soldered Fittings or any standard make of compression fittings, the need of excess metal for threading is eliminated, which results in a considerable saving in material costs.

There are three types of Revere Copper Water Tube. Each type meets Government and A.S.T.M. specifications for this product. Available in Hard and Soft Tempers. Hard Temper, for new and exposed work, in straight 12 and 20 ft. lengths; Soft Temper, for underground services and other purposes where flexibility is essential, in 30, 45 and 60 ft. coils.

Recommend copper and brass for plumbing installations. For best results, use REVERE.

TYPE K: For underground services and all plumbing purposes, particularly where water conditions are severe. Hard and Soft Tempers.

TYPE L: For general plumbing purposes. Suitable for normal water conditions. Hard and Soft Tempers.

TYPE M: For general plumbing purposes with Streamline soldered Fittings. Hard Temper only.

Revere Copper *and* Brass

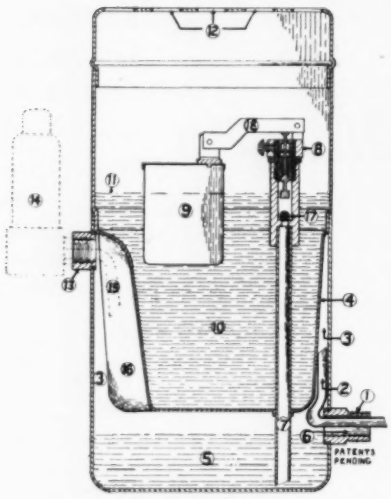
INCORPORATED

NRA CODE

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS. NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

IT'S A CINCH FOR YOU
TO SELL THE HOUSEWIFE
Ol'Faithful Humidifiers
FOR ONLY $7.50 each

It Is Supplied from Condensed Steam



Sectional View
Actual Size 3"x6"

Every woman knows that DESERT DRYNESS in the home during WINTER MONTHS—CAUSES drowsiness and respiratory troubles which develop colds, sore throats, tonsilitis, bronchitis and other disorders to which of course dry air is a contributing factor.

Experience has also taught the housewife that dry-air extracts moisture from the mucous membranes of the nose and throat which subjects these organs to an undue strain and weakens their resistance to germs carried by dust which, in part, is carried by the action of the dry air itself.

She is equally concerned about dry air robbing her skin of its moisture which results in dry and chapped skin and other effects that are harmful to the complexion.

Any housekeeper knows that dry air causes FURNITURE TO COME APART—DOORS TO WARP—FLOORS TO CREAK—THE FIBER IN RUGS TO BREAK OFF—BOOK BINDINGS TO SPLIT—WALLPAPER TO CRACK—PAINT TO CHIP—PIANOS TO GET OUT OF TUNE—PLANTS TO WITHER AND DIE AND WASTES FUEL.

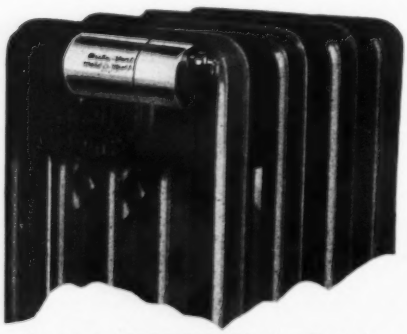
She is therefore HUMIDITY-CONSCIOUS and easily sold.

How *Ol'Faithful* Operates

The humidifier is attached to the steam air valve opening in the radiator by tail-piece 1. Steam enters heating chamber 3 through tube 2 striking copper pan 4, condenses and falls into storage space 5. When this space has filled with condensation it overflows back into radiator at 6. The steam pressure in space 3 forces the water up through tube 7. The rate of flow of the condensed water is controlled by valve 8 which is operated by float 9. As fast as the water is boiled away into the air from space 10, valve 8 maintains the water level 11.

The air in the radiator and humidifier is eliminated through air valve 14 and the bronze ball 17 checks air from entering humidifier when steam is down.

OL'FAITHFUL will operate on radiators heated by low pressure steam or vapor.



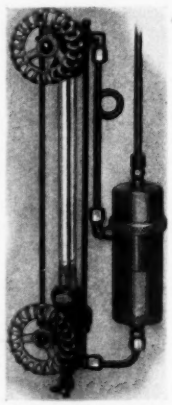
No. 200 AUTO-VENT Air Relief

No. 85 Water-Boy
SAFETY FEEDER

This unique water-feeder is small in size but dependable. It is easy and inexpensive to install and is a safe-guard against cracked boiler sections on oil, gas and stoker fired installations. It can be placed where it will remain cool and thus avoid corrosion.

It fills a long felt need for an inexpensive appliance to maintain a fixed water line in heating boilers, expansion tanks, radiator humidifying pans, warm air furnace humidifiers or any appliance that requires an automatic supply of water up to one quart per minute.

Retail Price of No. 85 only **$4.75**



Size 2¼"x5½"
Pat. Appl. For

The AUTO-VENT Air Relief Valve
for HOT-WATER RADIATORS

Automatic—Dependable—Easy to Install

Retail Price only $2.75

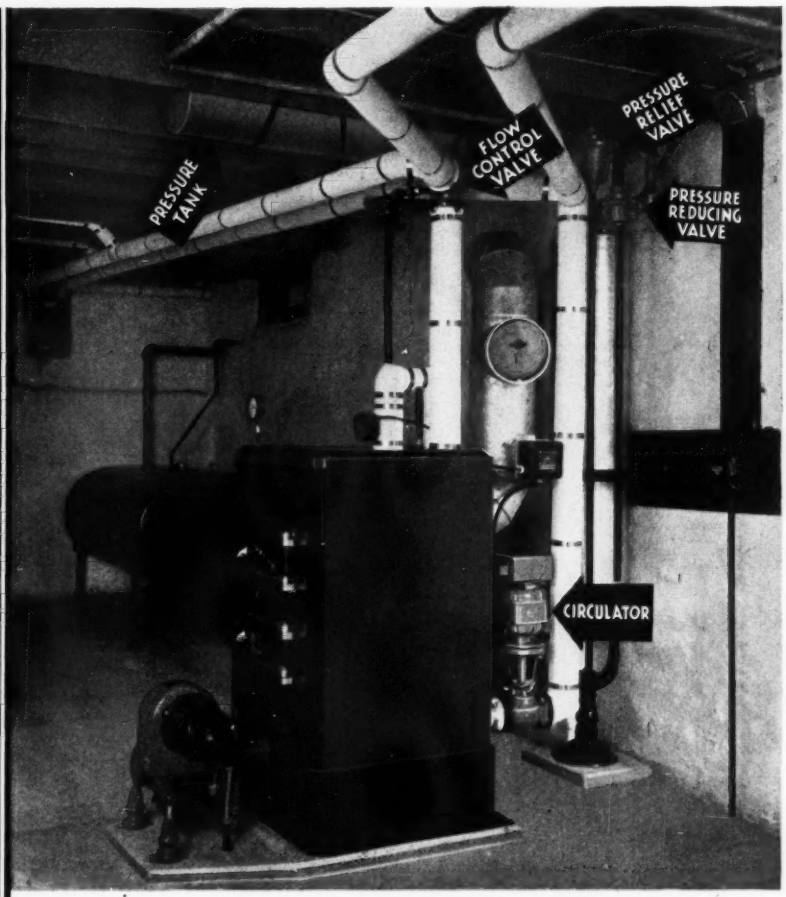
PRODUCTS OF

MAID-O'-MIST, Inc.

Wm. J. Woolley, Pres.

43 E. OHIO ST. **CHICAGO, ILL.**

EACH JOB SELLS ANOTHER FOR YOU



Thrush Flow Control Installation in York, Pennsylvania

MORE HOME COMFORT MEANS MORE SALES and PROFIT FOR YOU!

THRUSH Flow Control Hot Water Heating provides the home comfort expected in the home of today. Thrush Control makes Hot Water Heating quick heating—instantaneous heating! Hot water reaches every radiator in every room instantly when heat is needed because circulation is forced. When heat is not needed circulation stops—no fuel is wasted in overheating. This reduces the running time of the burner and greatly increases heating efficiency. It also provides a dependable supply of *really hot* domestic hot water at negligible cost.

Every Boiler-burner Unit Hot Water Heating plant intended for year around operation of burner to provide heat and domestic hot water supply in winter and domestic hot water in summer should have Thrush Flow Control as standard equipment. Then it is fully automatic and economical of fuel.

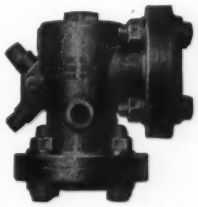
It pays to sell Thrush equipment which pleases users so much they tell their neighbors and get new customers for you!

H. A. THRUSH & CO.
PERU, INDIANA

LETTERS FROM THRUSH USERS

Frederick A. Thayer, Attorney, of Boston, expresses his satisfaction with his Thrush Flow Control Hot Water Heating System furnishing heat for ten rooms and two baths and halls of his two story home. His plant provides heat in winter and domestic hot water for bath, kitchen and laundry the year around. His fuel oil bill for twelve months was $210.00. He is very well pleased because of the abundance of domestic hot water always available and says that the fuel cost was very low considering the severe weather of last winter.

H. W. Deacon, Hainesport, N. J., writes—"The winter of 1933-34 was the most severe winter I have experienced and my plant was operated the year around, yet my fuel bill was only $133.00. I figure my domestic hot water costs less than $1.00 per month, which is astonishing."



Patented

THRUSH FLOW CONTROL INCREASES OIL BURNER EFFICIENCY

PROVIDES AUTOMATIC YEAR 'ROUND OPERATION!

PLENTY OF DOMESTIC HOT WATER A BY-PRODUCT

MAIL THIS COUPON NOW!
H. A. THRUSH & CO., Box 459, Peru, Ind.
Please send booklet describing Thrush Flow Control Heating System and its advantages for use with automatic firing devices.
Name .....
Address .....
City ..... State .....

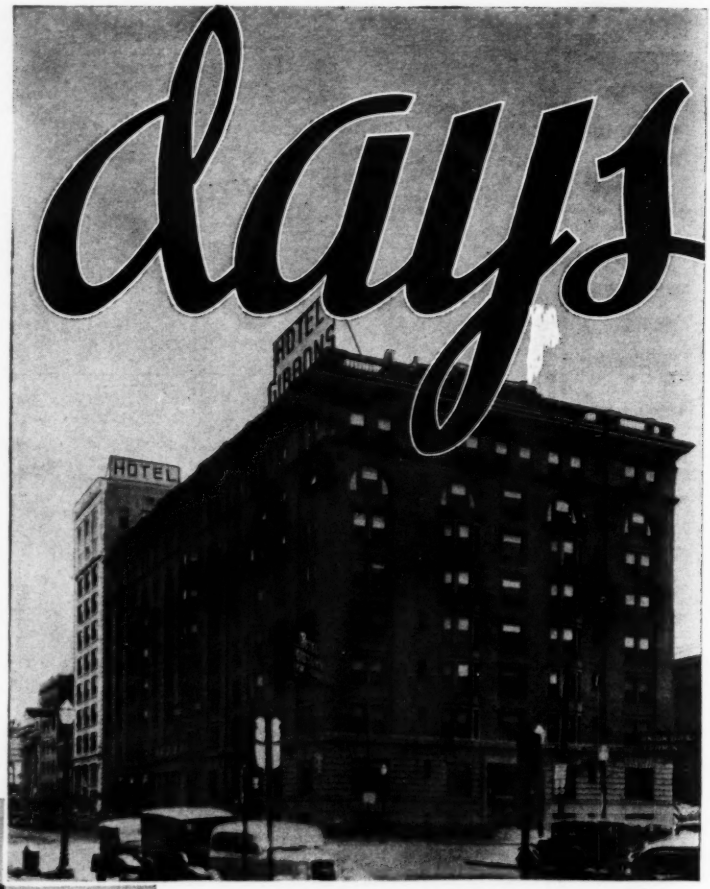
Thrush
FLOW CONTROL FOR HOT WATER HEAT

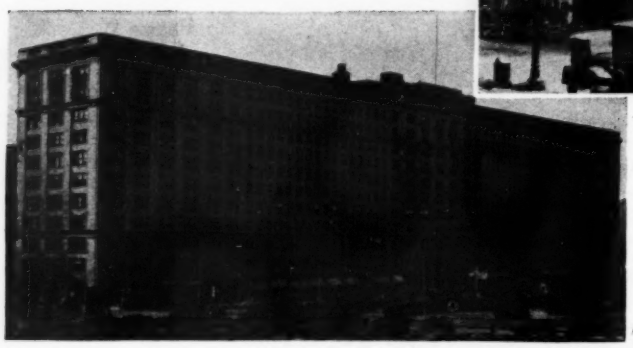
In 45 days

this

WEATHERSTAT SYSTEM

Paid Its Entire Cost in Fuel Economy





HOTEL GIBBONS, DAYTON, OHIO. "In addition to giving us 100% satisfaction, I find we saved the entire cost of this system (Weatherstat) within a month and a half after it started to operate". W. A. Fitzpatrick, Manager.

■

PARK SQUARE BUILDING, BOSTON, MASS. "The advantages of your system (Weatherstat) have proven themselves and already shown that we can save three or more tons a day in our heating plant. This would amortize the cost of this equipment in less than a year". Samuel Eliot, Agent.

THE WEATHERSTAT

The Weatherstat is the only practical device that reflects and responds to all four outside variables—temperature, solar radiation, wind direction and wind velocity. As they combine to affect its internal temperature, so the Weatherstat governs the operation of heating equipment indoors. It permits delivery of only enough heat to balance the losses from the building. No waste heat is generated and fuel costs are reduced with the Weatherstat.

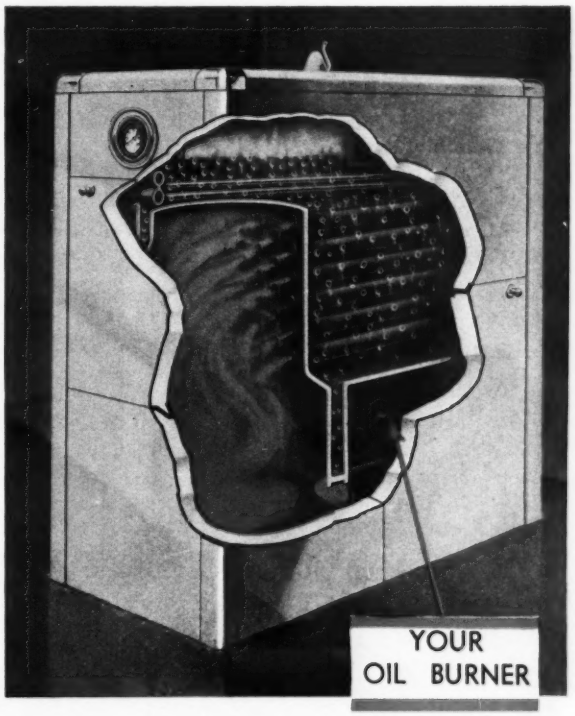
SUCH testimonials as these clearly show the comfort and fuel economy possible with Weatherstat control . . . While it is true that such economies cannot be expected in every installation, no other outside control can offer as many advantages as the Weatherstat—an exclusive feature of the Minneapolis-Honeywell Modustat System—because the Weatherstat responds to all four outside weather factors. Copies of the above letters and full information may be had upon request . . . Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minnesota.

MINNEAPOLIS-HONEYWELL

Control Systems

NOW . . .

Mr. Oil Burner Dealer, you can offer a modern, complete BOILER-BURNER UNIT. . . .



comprising **your burner,** teamed up with a boiler that works with the burner to reach high standards of heating economy.

A quick-heating copper-steel boiler in fourteen sizes, from 425 sq. ft. to 2680 sq. ft. . . . a boiler that meets every modern demand—including domestic hot water without a storage tank . . . a boiler enclosed in a beautifully enameled heavily insulated jacket that hides the burner from view.

Install your burner, and the

NEW FITZGIBBONS OIL-EIGHTY AUTOMATIC

and build lasting good-will and satisfaction with a heating unit in which appearance, convenience, and operating economy combine to turn sales resistance into a powerful impulse to buy.

Get the facts—write us.

INQUIRIES are pouring in

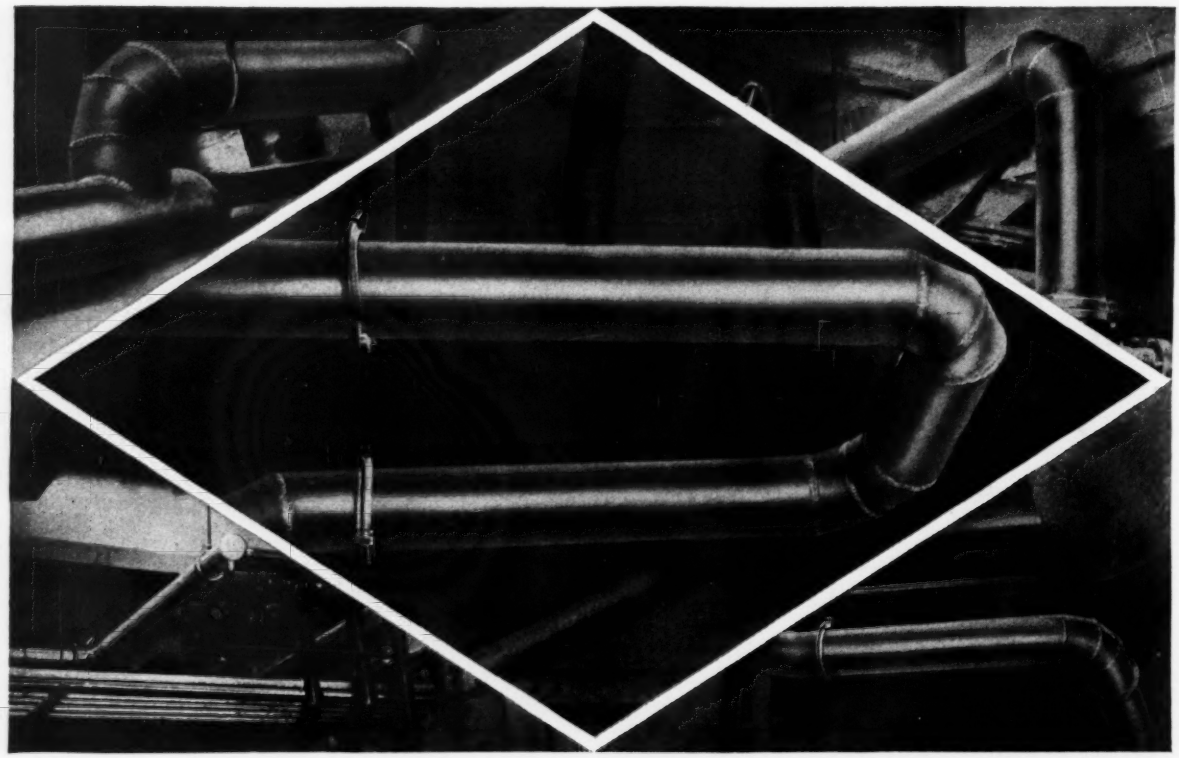
from dealers and heating contractors in all parts of the country for the new Fitzgibbons Oil-Eighty Automatic Catalog, just off the press, containing detailed information and a wealth of illustrations. Write—Today—for Catalog "F".

Fitzgibbons Boiler Company, Inc.

GENERAL OFFICES: 570 SEVENTH AVE., NEW YORK, N. Y.

Works: OSWEGO, N. Y.

BRANCHES AND REPRESENTATIVES IN PRINCIPAL CITIES



The Thing you cannot Buy is often Worth the Most . . Linde Process Service

● *PIPING, Piping everywhere — reducers, offsets, expansion bends, traps, headers — is welded into strong, economical, everlasting unified systems.*

ON a six-million dollar building project, Linde engineers cooperated closely on every detail of the piping work. During the preliminary stage, they pointed out to the architect, the contractor and the owners, the construction and maintenance savings possible with welded piping. While the plans were being drawn, they worked closely with the engineers to see that they had the latest data on improved welding practices. During construction, Linde engineers were constantly on the job. On final tests every joint proved completely tight. The owners and architects indicated their complete satisfaction by stating that in future construction they would specify oxwelded joints.

This is Linde Process Service at work.

In this typical case Linde Process Service functioned before work was started—and during construction, they brought the combined resources of a vast organization to bear on the problems involved. The Linde organization has, in its own right, vast facilities for the constant improvement of oxy-acetylene welding and cutting. And, for the study and adjustment of the metallurgical and chemical phases of welding, it has the unique cooperation of other units of Union Carbide and Carbon Corporation which have attained industrial leadership in these fields.

You get in Linde Process Service —when you buy Linde Oxygen—as much cooperation from Linde engineers as you need to assure the greatest benefit from your use of the oxy-acetylene process.

Any Linde man will gladly give you further information about Linde Process Service. Linde Sales Offices are located at Atlanta, Baltimore, Birmingham, Boston, Buffalo, Butte, Chicago, Cleveland, Dallas, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Phoenix, Pittsburgh, Portland, Ore., St. Louis, Salt Lake City, San Francisco, Seattle, Spokane and Tulsa. Everything for oxy-acetylene welding and cutting—including Linde Oxygen, Prest-O-Lite Acetylene, Union Carbide and Oxweld Apparatus and Supplies —is available from Linde through producing plants and warehouse stocks in all industrial centers.

PRODUCT OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

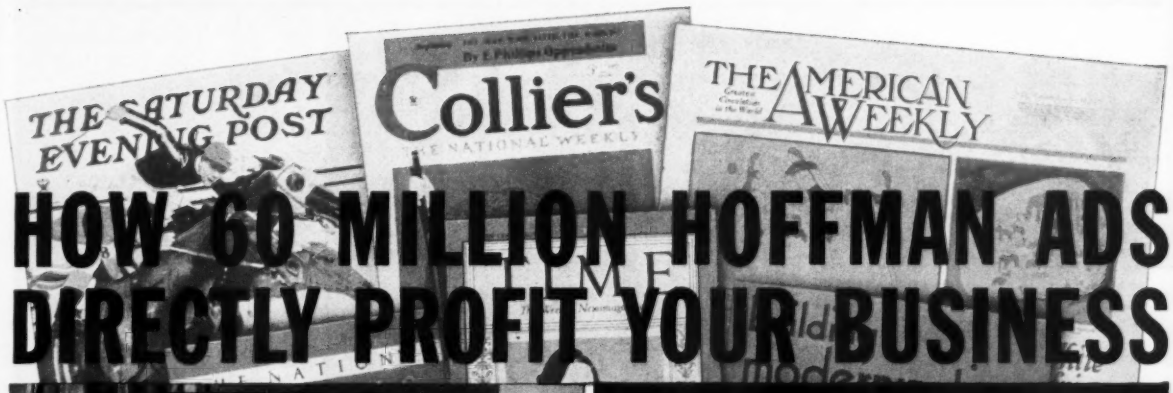
THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

UCC NRA CODE

In Canada: Dominion Oxygen Co. of Canada, Ltd.

YOU CAN ORDER EVERYTHING FOR OXWELDING AND CUTTING FROM LINDE



HOW 60 MILLION HOFFMAN ADS DIRECTLY PROFIT YOUR BUSINESS

FOR GOODNESS SAKE, CAN'T YOU DO SOMETHING ABOUT THESE COLD RADIATORS?
LOOK AT THIS AD ON HOFFMAN VALVES • LET'S ASK OUR HEATING CONTRACTOR••
YOU SAY HOFFMAN VALVES SAVE UP TO ⅓ IN FUEL • YET KEEP THE HOUSE WARMER ?
WELL, HERE'S ANOTHER QUICK PROFIT FROM A HOFFMAN MODERNIZING JOB•• THEIR SALES PLAN IS A WINNER!

TIE-UP NOW WITH THE MOST AGGRESSIVE SELLING DRIVE IN THE VALVE INDUSTRY!

Right now, leading National magazines are delivering 60 million Hoffman Vacuum Valve advertisements *to the best modernizing prospects in America!*

What does this tremendous Hoffman publicity mean to you? It means that two out of every three homes in *your own* business area are shown the money-saving advantages of Hoffman Vacuum Valves . . . that home owners are directed to you for full information on Hoffmanizing and how to obtain an N. H. A. loan . . . and that your business is being geared to the great modernizing movement now sweeping the country.

Your share of modernizing work is certain if you will cooperate. Send the coupon today for the details of our National Housing Act Sales Plan.

HOFFMAN SPECIALTY CO., INC.

Makers of Venting Valves, Supply Valves, Traps and Hoffman-Economy Pumps

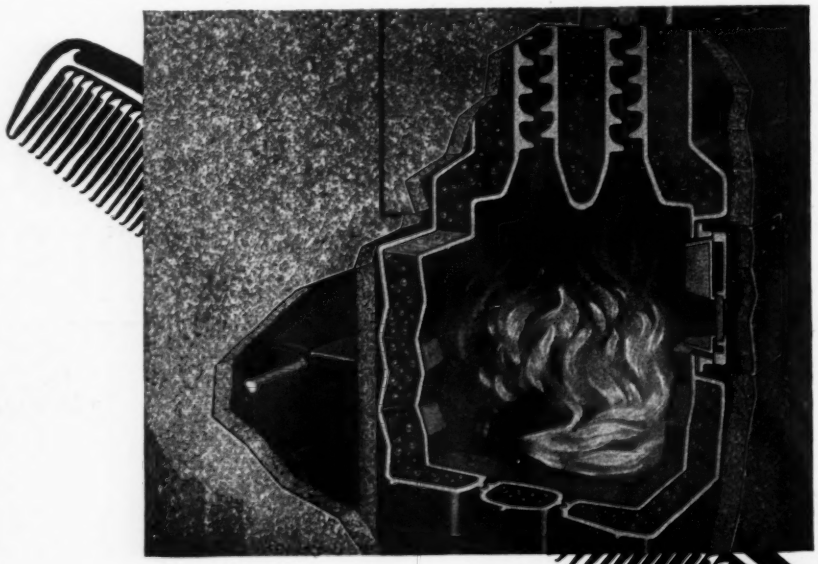
SEND

HOFFMAN SPECIALTY CO., INC.
Dept. EX-104 Waterbury, Conn.
Tell me how I can participate in Hoffman National Sales Promotion Profits.

Name .....

Address .....

City ..... State .....



1800 Degrees In 19 Inches

In a vertical fire travel of only 19 inches, 1800 to 2000 degrees of heat are extracted. Sounds like tall story club talk. If you doubt it, make us prove it.

Let's Talk Sense on this Built-in Oil Burning Boiler Question

LET'S kick out the ballyhoo and get down to the bally truth. No one knows better than you that it was the Burnham coal firing boiler that the majority of the oil burner makers always used for demonstrating.

No need to tell you the reason they used them. Old man Common Sense tells you, it was because they performed best. Did it on less oil.

All right then. We had a pioneering experience, a starting point for designing an out-and-out built-in oil burning boiler, such as no other maker of boilers had.

All this experience we have capitalized on, in designing a special Built-In Oil Burning Boiler.

This Burnham came slowly but surely. Now it's here, you can depend on it being not a try-out; not a part experiment.

The Burnham Oil Burning Boiler has an entirely new vertical flue design, that literally combs out the heat. Combs it with a flue construction, that's like a series of big fine-tooth combs.

So closely do they comb the heat that in a vertical fire travel of only 19 inches, 1800 to 2000 degrees of heat are extracted.

Furthermore, the built-in Taco hot water heater is placed at the water line where it is always the hottest.

Six silent watch dogs, or automatic controls, insure an owner peace of mind and comfort of body.

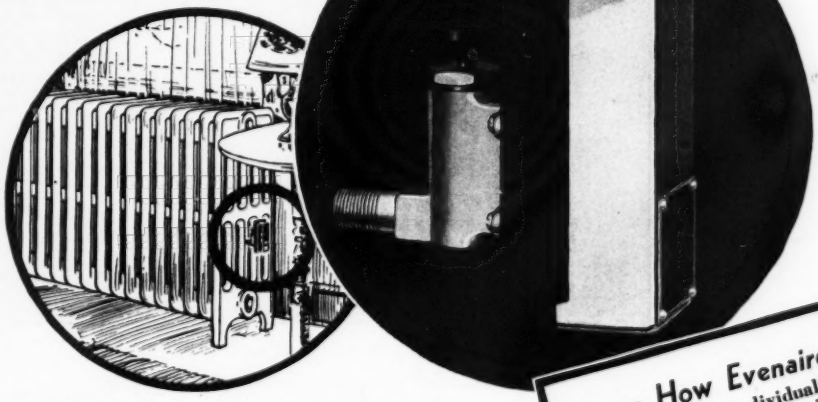
Send for new catalog. Get the low down on this 100 percent oil burning design built-in boiler. The boiler that can be equipped with any pressure type burner.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

PROTECT
your Oil Burner Sales with Evenaire



Installation is simple. You merely remove the air valve from the radiator and in its place screw in the Evenaire Push-Button Air-Charger Unit illustrated.

New owners of oil burners or stokers are the most critical owners; and although their criticism is often a little "wild-eyed," you have to meet it in order to retain their good will. They bought automatic heat to gain better room heating. If they find they still have the same old heat distribution troubles as formerly, they simply charge it up to the new oil burner or stoker; forgetting that its function is confined solely to heat generation.

Protect your oil burner or stoker installations against unjust criticism with Evenaire. Evenaire is unquestionably the simplest and most effective means of obtaining individual room temperature control in one-pipe gravity systems. The complete Evenaire System consists of a unit on each radiator in the building, with basement devices for air charging; but now it is also possible to apply Evenaire control to the one or more radiators that may be causing trouble by means of the Push-Button Air-Charger Unit illustrated above.

Pick out the radiator that is giving the most trouble—the room in which occupants are alternately roasting and freezing—and install an Evenaire Push-Button Air-Charger Unit in place of the air valve. It will quickly convince the owner that room temperature can be automatically regulated and controlled at the radiator.

Often the simple demonstration of a single Evenaire Unit is so impressive to an owner that the sale of a complete Evenaire System results. Needless to say, this is very profitable business.

Remember, the season for Evenaire sales really opens up *after* heating starts. Now is the time. Investigate the merits of Evenaire. Follow up your oil burner or stoker sales with Evenaire installations. Special franchises are open right now to aggressive dealers. Write today.

NATIONAL REGULATOR COMPANY, 2317 Knox Ave., Chicago, Illinois

Learn How Evenaire—

Makes automatic individual room temperature control possible in one-pipe gravity systems.

•

Ends overheating and eliminates the fuel waste that results from it.

•

Corrects uneven heat distribution.

•

Stops pounding and hissing of radiators.

•

Pays for itself in the fuel saving it makes possible.

Make your own tests of Evenaire. Order a Push-Button Unit and install it on the most refractory radiator you know of. You'll be more than pleased by the results, and you'll gain a new conception of the possibilities for positive heat control in one-pipe systems.

Evenaire

PRODUCT OF NATIONAL REGULATOR CO.

Send complete information covering operation and installation of Evenaire—also facts about the push-button air-charger unit.

Individual .....

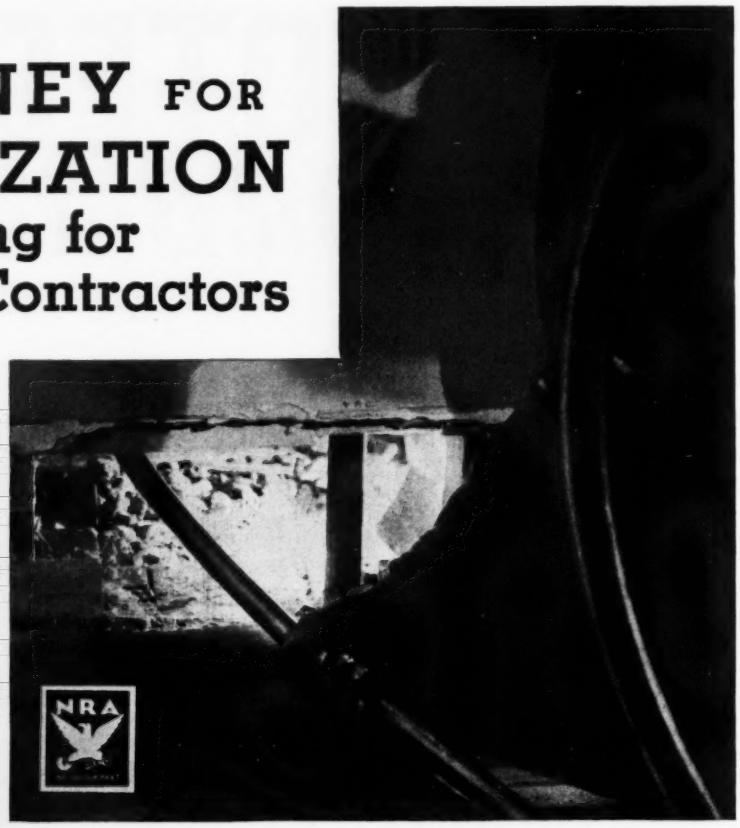
Business Name .....

Street and No. .....

City and State .....

Mail to NATIONAL REGULATOR CO., 2317 Knox Avenue, Chicago, Illinois.

N.H.A. MONEY FOR MODERNIZATION is waiting for wide-awake Contractors



Remodeling should start with the replacement of obsolete, rust choked pipe. Bridgeport flexible Copper Water Tube is excellent for replacement because it keeps destruction of walls and floors down to a minimum.

Specify

"Bridgeport"

products at your Distributors

PLUMRITE
BRASS and COPPER PIPE
COPPER WATER TUBE
PLUMBERS' BRASS GOODS

PROPERTY owners can borrow $100. to $2,000. for improvements under the liberal terms of the Government's N.H.A. Loan Plan. An analysis of the first loans made show that at least *30% of the money spent will be for plumbing and heating.* Government estimates place at $1,500,000,000. the cost of bringing American homes up-to-date.

Get your share of this business. Your bank or your local N.H.A. committee will give you the details of the Loan plan.

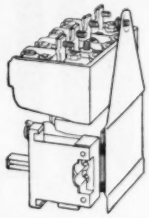
To provide the most value for the money spent for plumbing improvements, specify Bridgeport products.

• • •

"Bridgeport Copper Water Tube," a new booklet chock-full of practical information, will be of considerable help to you in planning remodeling jobs. Send for your copy today.

BRIDGEPORT BRASS COMPANY
BRIDGEPORT, CONNECTICUT

NEW YORK • BOSTON • PHILADELPHIA • CLEVELAND • DETROIT • CHICAGO
NEWARK • PROVIDENCE • CINCINNATI • ST. LOUIS • NEW ORLEANS
• DAYTON • AKRON • LOS ANGELES • SAN FRANCISCO •



Allen-Bradley A.C. Starting Switches are supported in rubber-grommet mountings that absorb hum and vibration.

Use Allen-Bradley Starters

for Oil Burners, Refrigerators, Stokers, Air Conditioners, etc.

Bulletin 709 Across-the-Line Starter is the most popular A.C. motor starter for motors up to 15 H.P., 110 V., 30 H.P., 220 V., 50 H.P., 440-550 V.

Allen-Bradley Manual and Automatic Motor Starters are available in a wide variety of cabinets for standard, waterproof, dustproof, explosion-proof, and other service.

Bulletin 712 Combination Starters for A.C. Motors combine a hand-operated disconnect switch with automatic starter.

A-B Allen-Bradley

The Allen-Bradley line affords such a wide variety of starters, in an assortment of standard cabinets for every service, that you can always find exactly the right manual or automatic starter for any job. The Allen-Bradley line solves the problem of motor control—no matter what kind of control problem you have tackled, whether simple or complex, you will find just what is needed among the standard units listed in the Allen-Bradley line. Allen-Bradley sales and engineering offices are located in all principal cities from coast to coast and from Canada to Mexico. Call upon them for technical control data. They are at your service. Send for latest bulletins, today!

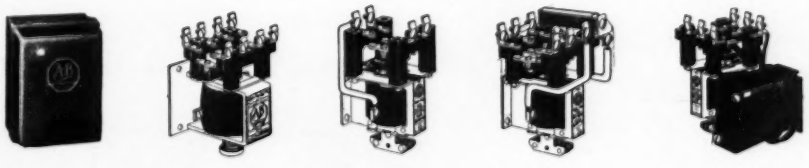
ALLEN-BRADLEY CO.
1317 S. First St., Milwaukee, Wis.

Bulletin 709SP A.C. Single Phase Motor Starters are rated up to 1½ H.P., 110 V., 3 H.P., 220 V., and can be used interchangeably on either voltage. Give overload protection.

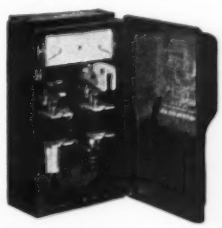
Bulletin 609 A.C. Manual Starters are rated up to 3 H.P., 110 V., 5 H.P., 220 V., and 7½ H.P., 440-550 V. Overload protection (not no-voltage release) is a standard feature.

Bulletin 209 D.C. Automatic Motor Starters provide across-the-line starting for motors up to 1 H.P., 115-230 V., with overload protection. Larger D.C. starters are included in the Allen-Bradley line.

A. C. & D. C. CONTACTORS FOR EVERY APPLICATION



Solenoid Contactors and Relays are available in combinations from one to eight poles (see illustrations above) for every type of service. Furnished with or without steel cabinets.



Bulletin 265 D.C. Resistance Starters handle motors up to 10 H.P., 115 V., 20 H.P., 230-550 V. Accelerating resistor is easily adjustable.

a new de luxe

OIL BURNING

G BOILER

FOR THE LARGER-THAN-AVERAGE HOME... APARTMENTS, CHURCHES, STORES

★

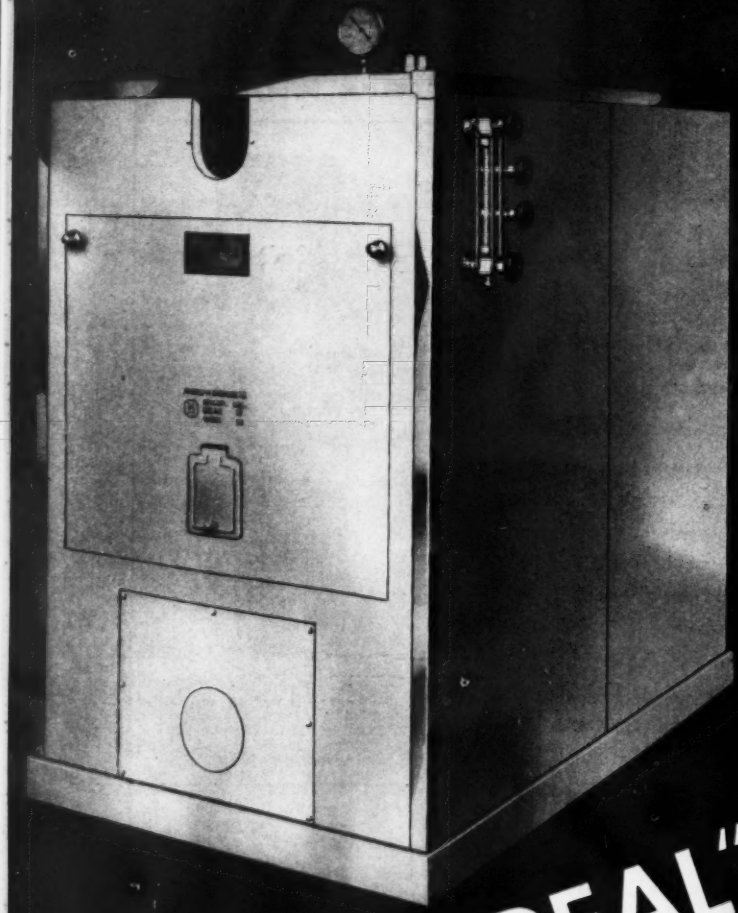
NO. 92 "IDEAL" is a new sectional, cast iron oil burni boiler—designed to American Radiator Company's hi and rigid standards. It is a de luxe job that meets the requi ments of homes larger than the average, and apartmen churches, stores, etc., filling a definite place in your comple line. The No. 92 has a boiler output for steam ranging from 18 to 3675 sq. ft.; for water, from 2910 to 5870. This supplemen the famous No. 12 "Ideal" Oil Burning Boiler which has an outp for steam of 705 to 1325 sq. ft.; and for water, of 1130 to 212

The ample, correctly proportioned combustion chamber of t No. 92 permits the proper burning of oil. The water-back tubes surrounding the chamber and the series of long fl through which hot gases must pass, present an exceptiona large heat-absorbing surface. This large surface extracts a ma imum of heat from the burning oil in a minimum of time; setti up rapid circulation within the boiler and resulting in quick ac up and minimum lag between the thermostat's call for he and steam in the radiators. No. 92 may be used with any typ of burner. It is adaptable to either front or rear installati

All contacting surfaces of door and sections are precisi ground to form air-tight and leak-proof iron to iron contac The back sections have 2" tappings for external water heater co nection; or special tappings can be furnished on special ord

The inward precision and dependability of this new boiler reflected in its gleaming outward beauty. It is all enclosed even to the smoke hood—in a brilliant, chromium-trimm green enameled steel jacket, lined with improved asbesto

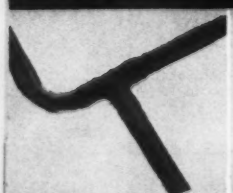
There has been a definite demand for an oil burning boi of this type and capacity. There are many jobs into which it w fit as though custom made. It is ideal for modernization work and in such cases you can sell it on the new Payment Plan no down payment, no red tape, as long as three years to pa



NO. 92 "IDEAL"

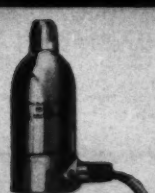
OIL BURNING BOILER

Other American Radiator Profitable Products for Oil Burner Dealers

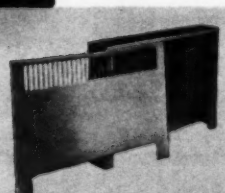


Copper Pipe and Fittings

Controls and Switches



Vents and Valves



Radiators and Enclosures

Hot Water Heaters

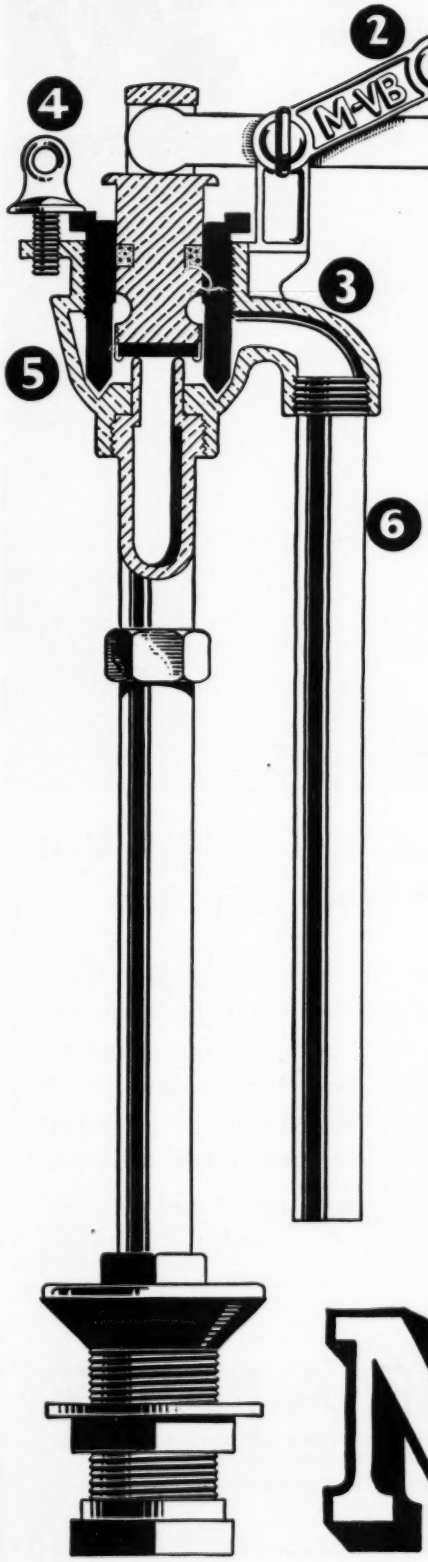
Boiler-Furnace C

AMERICAN RADIATOR COMPANY

40 West 40th Street, New York, N. Y.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

THERE'S NO ROOM FOR TROUBLE IN No. 18



M-VB's newest ballcock

Look at the construction of this great new ballcock. Solid, sturdy, as simple as it can be made. Wherever trouble might appear in ordinary types, we built-in features to avoid it. Notice the six big points of superiority that are illustrated.

No. 18 is typical M-VB construction all through. Design, materials, workmanship are quality. It's the kind of fitting that builds you a first-class reputation with your customers. It gives them what they want—a quiet, fast, efficient, trouble-free tank fitting.

Ask your jobber for details and prices—No. 18 costs no more than ordinary types! Write to the address below for the complete M-VB catalog.

1. Even at high pressures, it uses a standard 4" x 5" float.
2. A powerful, new-type leverage makes it easy to install in close tanks, easy to get at the regulator.
3. The regulator is hard rubber, to cut down corrosion, to prevent freezing into the body. Plunger has a full bearing in rubber for its entire length.
4. Thumbscrews are cast bronze, a mark of quality.
5. It's as quiet as you want it, adjustable to absolute silence at any pressure from 5 to 200 pounds.
6. Even at a pressure as low as 5 pounds, it can be adjusted to fill the tank in 100 seconds.

MORENCY-VAN BUREN DIVISION
SCOVILL MANUFACTURING COMPANY
STURGIS • MICHIGAN
A COMPLETE LINE OF CLOSET TANK FITTINGS

M.V.B

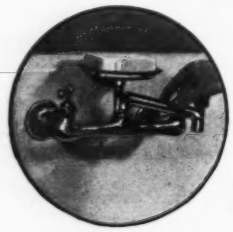
• A MODERNIZATION UNIT

that every modern kitchen needs

CRANE

Sunnyside

CABINET SINK



Made with corner walls on right or left or both ends—or *without* corner walls to set free.

Swinging spout AGILIS above deep basin.

Smooth, flat drainboard, front and back rim.

• Easily Installed as a Single Unit or with Work Table Top

HERE'S your first real opportunity to offer N. H. A. modernizers something *unusual* for their improvements!

A versatile sink that will keynote the entire kitchen . . . match decorative effects in white or in Crane colors. A compact, window-height sink that will accommodate standard steel or wood cabinets under its smooth flat bottom in any arrangement!

Crane Sunnyside Cabinet Sink answers the modernizing urge because of its *versatility*. You can install it complete, as a single unit, or you can use it in continuous work table arrangements . . . go as far as the client likes!

Every woman will appreciate the fine Crane acid-resisting porcelain enamel cast-iron sink . . . surfaces stay lustrous, glistening and undimmed by fruit juices or citric acids. She'll like the all-steel welded cabinets with their smart cast brass chromium plated hardware.

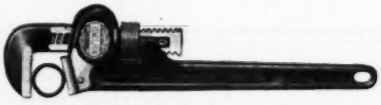
Here's a unit you can go out and sell *on its merit*. It's genuine Crane quality throughout . . . that's why we predict a warm reception for your sales efforts!

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.
NEW YORK: 23 W. 44TH ST.
Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

Have You Tried All These Unusual RIDGID PIPE TOOLS

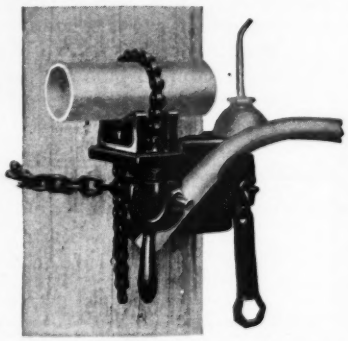


The RIDGID Wrench

Heavy-duty, housing unbreakable in service, chrome molybdenum jaws, easy turning adjustment nut in open housing, all sizes, 6" to 60". Also RIDGID End Wrenches and Super-Sizes and Super-Fours with compound leverage.

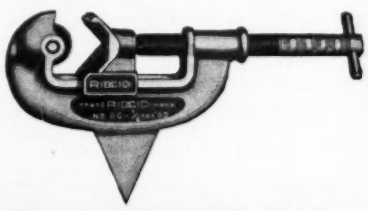
RIDGID Threaders

This No. 65R threads 1" to 2" pipe with one set of chasers. Many other improvements. There are now 9 different threaders, all with special advantages, in the RIDGID line.



RIDGID Vises

This is the RIDGID Chain Post Vise, one of 7 different yoke and chain patterns, all equipped with pipe rests and benders and other special features.



New RIDGID Tubing Cutter

A rugged little 5½ inch 6½ ounce tool that cuts and smooths the tubing ready to solder. Efficient reamer. Special tool steel razor-edge cutting wheel.

All Pipe is Lead Pipe to a RIDGID Cutter

With This Alloy Tool Steel Cutter Blade

Housing is steel reinforced—won't distort or break.

The trick of RIDGID Cutter performance is in this blade wheel—which fits any RIDGID type cutter.

RIGHT through iron, steel, copper and brass pipe —as if they were lead—the RIDGID Cutter blade rolls in quick clean cuts. You see the difference at once. You appreciate it more when you experience the much longer life of these blades.

The reason lies in their alloy tool steel, coined out of special sheets, hammered and heat treated, and then assembled in a solid hub. These blades have stamina—they hold their edge, they cut clean. Try them—for new satisfaction and economy.

Your Jobber has them.

NRA WE DO OUR PART

THE RIDGE TOOL CO.
Elyria, Ohio
U. S. A.

RIDGID
PIPE TOOLS

JONES' ESTIMATING TABLES

a brand new book containing information every man should know about air requirements and duct sizes for heating and air conditioning

NOW, you don't have to waste your valuable time trying to estimate heating and air conditioning requirements—here's a brand new book, just off the press—that does this kind of work for you.

Estimating duct sizes . . . areas of registers . . . dimensions of risers and ducts...heat losses in Btu... air requirements at various velocities . . . all of these are enough to give the average heating man a nightmare. Yet with the advance of air conditioning, and the boom of modernizing and remodeling brought on by the Federal Housing Act, heating men can no longer dodge the issue.

This brand new book makes the work of figuring heating and air conditioning requirements, clear, easy and absolutely certain. It positively eliminates the chance for error or omission. It not only saves you time in estimating but it will eliminate many costly call-backs after installation.

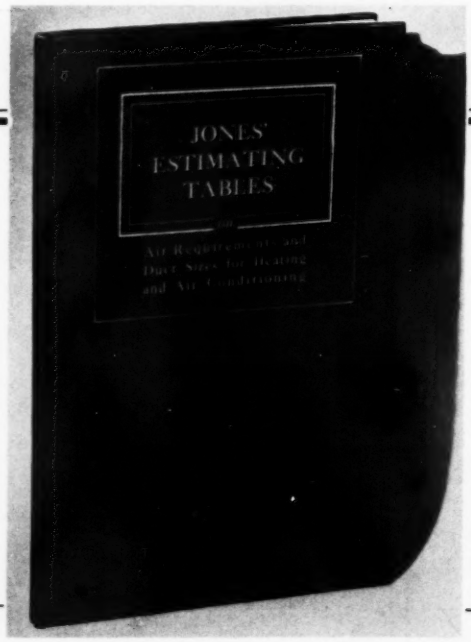
In the book are four sets of tables for 60, 70, 80 and 90 degree temperature difference. You use the table which meets the climate condition in your locality.

The tables cover every possible condition including the various types of construction, roofs, floors, ceilings, insulation, single and double glass, windows, everything that will have an effect on heating and air conditioning. And the tables can be put to use on any systems using ducts regardless of whether a boiler or furnace is used for heating. In the book is an easily understood explanation of the tables, together with a practical illustration of how they should be used. It makes the job of estimating air requirements and duct sizes, so simple that you just can't go wrong.

The author, a well known heating engineer, has been figuring this type of work for the past twenty years, and since the compilation of these tables, has yet to get a job upon which the tables will not work to perfection.

The book is reasonably priced at $2.00, considering the fact that twenty years of experience are back of the tables in the book.

Send in your order today. If the book is not all we claim, if it will not make easy the kind of work that many heating contractors would like to sidestep, then we will gladly refund your money. Fill in the coupon below. Pin your check to it and mail it today.



CAN YOU ANSWER THESE QUESTIONS?

What is the difference between the infiltration method and the cubical contents method of figuring air requirements for heating?

How much air leaks through each lineal foot of crackage around windows and doors?

Is it customary practice to recirculate air from kitchens, bath rooms, and garages in residence heating systems?

What is considered the correct temperature to maintain in heating garages?

In figuring heat losses, at what temperature can you assume unheated attic spaces to be maintained?

What is the temperature of concrete floors in basements and the heat loss through same?

How much air will one Btu raise one degree Fahrenheit?

What is the accepted method of estimating the sizes of trunk line sections in a duct system?

TABLE OF CONTENTS

Chapter 1.
Explanation of tables.
Example showing use of tables.
Explanation of formulas used in development of tables.

Chapter 2.
9 tables for temperature differences of 90 degrees covering the multiplying factors for c.f.m. requirements for masonry walls, frame walls, roofs over heated spaces, ceilings, concrete floors, wood floors with no ceilings, glass windows, infiltration and cubical contents.

Chapter 3.
9 tables, same as above, for temperature differences of 80 degrees.

Chapter 4.
9 tables, same as above, for temperature differences of 70 degrees.

Chapter 5.
9 tables, same as above, for temperature differences of 60 degrees.

Chapter 6.
Table for determining areas of ducts for various air velocities and c.f.m.

Chapter 7.
Table for determining equivalent sizes of rectangular ducts as compared with round ducts.

Chapter 8.
Table determining register and riser sizes for supply and return air on basis of c.f.m. and air velocity.
Table for multiplying factors for changing c.f.m. to Btu. when heating garages.

Chapter 9.
Example of working out actual installation.

DOMESTIC ENGINEERING,
1900 Prairie Avenue, Chicago, Illinois.

Please send me one copy of JONES' ESTIMATING TABLES for which I enclose $2.00. I am to have the privilege of returning this book if it is not what it is claimed to be.

Name .....

Address .....

City and State .....

PLUMBING BRONZE *Designed to uphold the Reputation you've Established*

● If you believe that every job you handle helps to make or break your reputation in the community—

If you agree with us that the only way to be sure of consistently dependable work is to use consistently dependable materials—

And if, like us, you feel that the surest way to keep old friends and make new ones is to put an EXTRA measure of service and quality into the work you do for them—

Then you are the type of dealer to which the entire McDonald organization is dedicated; and we assure you that you will find it decidedly worth your while to ask for further details.

McDONALD PLUMBING BRONZE

• Plate E3293—Compression faucet with solid female flange. Four-ball handle with removable china index. Choice of finished, nickel plated or chromium plated.

• Plate E3373—Compression faucet with plain spout and adjustable flange. Equipped with china lever handle. Available in plain or indexed Hot, Cold or City, as specified.

• Plate E3264—Compression faucet with hose spout and solid female flange with hexagon. Choice of finished, nickel plated or chromium plated.

• Plate E3409B—Swing spout combination sink faucet. Nickel or chromium plated. China or brass indexed handles. Goose neck spout makes this desirable for sinks with backs only 8 inches high. Plate E3419 is same, except with straight spout.

• Plate E3242—Compression faucet with hose spout, iron pipe. Furnished in five different finishes.

In addition to Bronze Plumbing Material, McDonald Products include Iron Hand and Wind Mill Pumps and Cylinders; Power Pumps and Water Supply Systems; Cast-Iron Plumbers' Specialties. . . . . Write for catalogue of lines you are interested in.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO. DUBUQUE IOWA

Omaha — Minneapolis — Des Moines — Kansas City — Sioux City — Grand Island — Hutchinson
Neb. Minn. Ia. Mo. Ia. Neb. Kan.

BETWEEN OURSELVES

Thanks:
"We wish to express our appreciation of your magazine. It contains much valuable matter."
W. G. L.,
Michigan.

An Old Friend

Repair work, whether carrying the newer title of modernizing or stepping to the front under its older title of jobbing, is as welcome as an old friend.

Ends Unemployment

The FHA, closest of the Washington alphabetical group to the building industry, is reinstating repair work as a substantial part of the business of many contractor-dealers. In one large city, this drive for remodeling has ended unemployment in the building trade, according to the report of a government official.

Results Being Won

Results generally are obviously not so glowing, but they are definitely encouraging to those dealers, wholesalers, and manufacturers who have gone after such work promptly and regularly.

Sales Helps

In this issue we tell you of some of the work which our readers are doing. We offer you an example of a letter which has brought results, of newspaper advertisements which more than paid their way, of direct mail efforts which led to business, of show window displays which more than repaid their costs, and of other sales helps which dealers and readers are using.

Many at Work

This nation-wide drive for remodeling is one of the biggest helps our industry has had. While anyone could think of reasons why the program would not work, there were some who felt the building industry could help itself. They were willing to promote and secure the necessary legislation, plan a program, and now are seeing it being carried through successfully by many companies and many more dealers.

Offer Prizes

In this issue you again find an announcement of the prize program which DOMESTIC ENGINEERING is offering to its readers. Money, a big catalog of the industry, technical books, and finally a Grand Prize of $100.00 make the contest worth while personally. And as you enter and put your successful ideas before the judges, you are also doing your share to help other plumbing and heating dealers get into quick action in reviving our industry.

$30 Out of $100

Obviously many of our readers have been prompt in their response to this big national movement because we continue to find that out of every hundred dollars spent in this better housing campaign, thirty dollars goes to the plumbing and heating industry. Heating holds first place, with plumbing a good third.

Enter Now

No doubt, like thousands of others, you read the complete announcement last month of the DOMESTIC ENGINEERING prize campaign. If you are one of those who have not entered, be sure to write us promptly telling us something of your experiences. Send us a copy of your advertisements, your letters or just report on your sales methods and experiences.

Advertise the Plumber

The past month witnessed some significant announcements by manufacturers and wholesalers regarding the importance of having plumbing properly installed. You read in the October issue the article in which President Calnan emphasized the advantage of selling the final services of the plumbing fixture rather than talking only about the fixture. Some examples given in following pages of this new style of advertising will prove mighty interesting.

Sign Last Code

The code for the wholesalers has been signed and accepted. This puts all branches, plumbing and heating contractors, wholesalers and manufacturers, under NRA regulations.

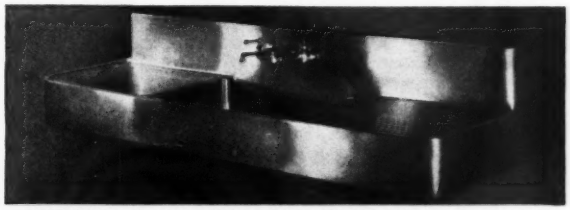
Bogus Contracts

You will find in our news section an interesting report of a survey made to determine just how many future delivery contracts were really contracts. The survey showed such a serious condition that some manufacturers are now going to charge a fee to be used for checking purposes.

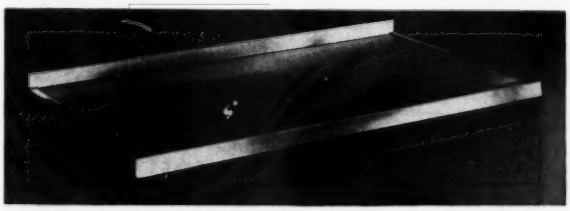
Your Editor

Assemble a MONEL METAL *kitchen from* Standard Units

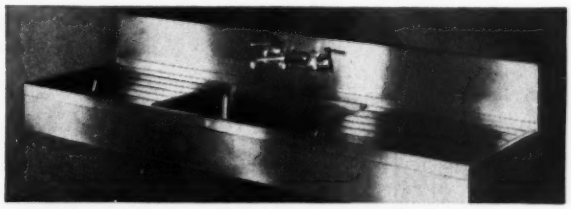
INCO "Straitline" Monel Metal Cabinet Sink, with 8" back splasher.



INCO "Streamline" Monel Metal Kitchen Sink, double drainboard model.

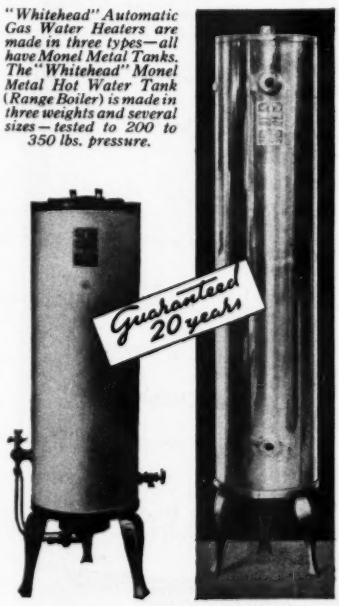


INCO "Straitline" Monel Metal Cabinet Top, with 1½" integral back splasher.



INCO "Straitline" Monel Metal Kitchen Sink, double drainboard model.

"Whitehead" Automatic Gas Water Heaters are made in three types—all have Monel Metal Tanks. The "Whitehead" Monel Metal Hot Water Tank (Range Boiler) is made in three weights and several sizes—tested to 200 to 350 lbs. pressure.



THE kind of gleamingly efficient kitchen that women-prospects yearn for is now a simple matter to assemble... and no longer a costly one.

A complete line of *standardized* Monel Metal kitchen equipment offers you stock models, immediately available at prices in reach of even modest building or remodeling budgets.

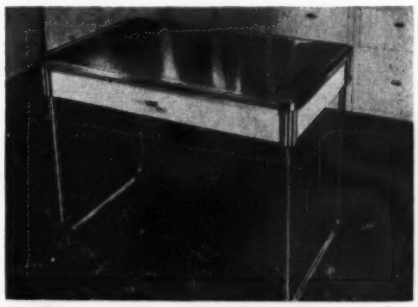
Monel Metal sinks and cabinet tops, in 57 *standardized* models and sizes, meet practically every possible kitchen layout.

There are also available Monel-topped gas ranges and tables, Monel hot water tanks (range boilers) and gas water heaters with Monel storage tanks.

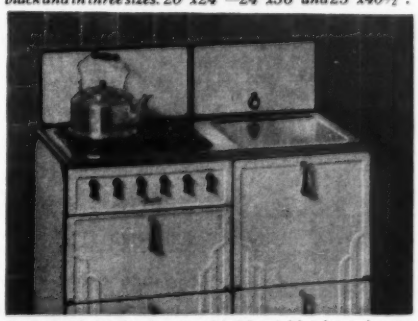
Seven years of continuous big space advertising, in the great national magazines, have built up a strong desire and demand for Monel-equipped kitchens... a demand that active plumbing contractors know can be turned into sales.

Write for information and our new, fully illustrated catalog "INCO Standard Monel Metal Sinks and Tops".

THE INTERNATIONAL NICKEL CO., INC.
67 WALL STREET NEW YORK, N. Y.



The "Smartline" Monel Metal Table, designed by Ray Patten. Available in four colors—white, ivory, green or black and in three sizes: 20"x24"—24"x36" and 25"x40½".

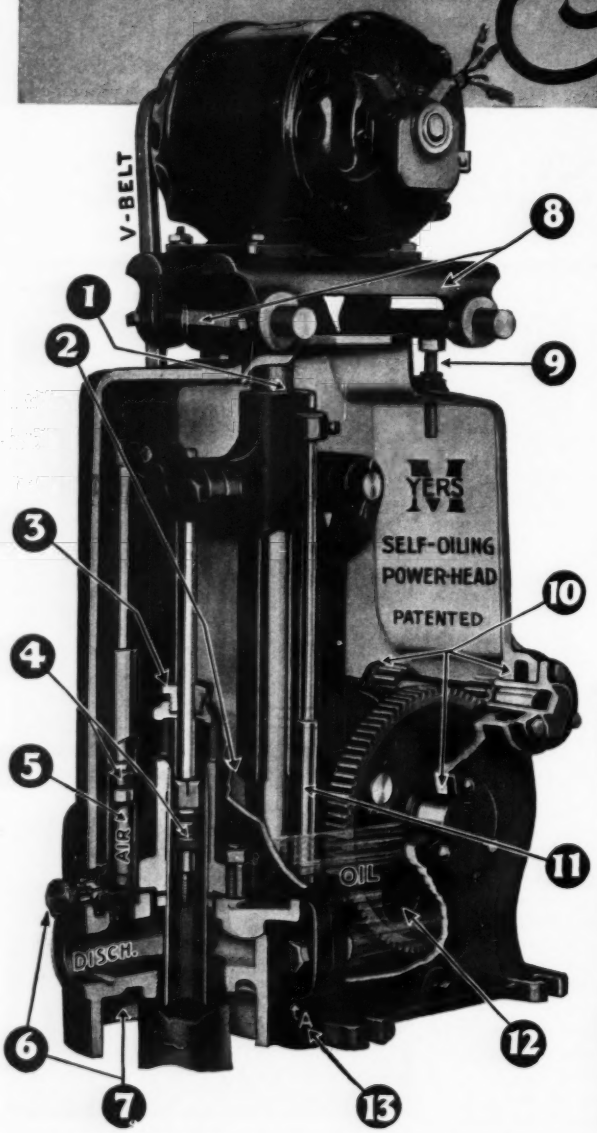


"Magic Chef" Gas Range with Monel Metal top, burner pan and broiler pan grid.

Monel Metal

Monel Metal is a registered trademark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

PERFORMANCE Counts!



THE latest and finest self-oiling deep well power pumps ever produced by MYERS—we now offer them to the trade as unmatched for quality and performance. New features and improvements to increase their efficiency and lengthen service years. New performance values that mean greater satisfaction to the user. Built and machined to the finest of mechanical standards. Easy to install and operate. Wear and care free. Compact, durable and dependable. Qualities that are apparent and win instant recognition of the prospective purchaser. Then, too, prices are still exceptionally low and favorable. And Myers National Advertising continues.

It will be to your advantage to immediately investigate the newest developments in MYERS SELF-OILING DEEP WELL POWER PUMPS. Write our Engineering Department for particulars.

EFFICIENCY-PERFORMANCE CHART

No. 1 Oil is delivered on guide post above cross head at each stroke.

No. 2 On each down stroke lower end of cross head dips into the oil carrying it up the guide post.

No. 3 Water Deflector prevents water entering oil chamber.

No. 4 Expansion Plungers to take up wear.

No. 5 Air Cylinder forces air into tank through discharge line.

No. 6 Air Control Valve to regulate air volume.

No. 7 Apron to prevent surface water entering well.

No. 8 Adjustable Hinged Motor Rails to fit different style motors and to take up belt slack.

No. 9 Adjusting Bolt to raise or lower motor to adjust belt.

No. 10 Self-Oiling and Self-Cleaning Bearings.

No. 11 Oil Pump delivers oil on post above cross head.

No. 12 Perfect Oil Bath of all working parts.

No. 13 Gear Case Supporting Projection carries entire weight of well pipe.

Your experience in the sale and installation of deep well power pumps parallels our own—unless the pump itself is correctly built and has the stamina to carry heavy loads and strains, trouble quickly develops. Wear, breakage and leakage are the result. Service calls are frequent and users are dissatisfied. The story is short but strikingly true. The moral is, sell the improved line of MYERS SELF-OILING DEEP WELL POWER PUMPS exclusively and profit accordingly.

THE F.E.MYERS & BRO. CO.
ASHLAND, OHIO.

PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

OUR INDUSTRY

November, 1934

Advertise the Plumber

October witnessed a significant development in the merchandising of plumbing and heating products. It revealed the beginning of a national effort to make the American public realize that good plumbing products must be properly installed by qualified men.

The step is a logical and sensible one. As President Calnan of the National Association pointed out in our October issue, this industry has failed to use its best salesman—the plumber.

It is worth repeating some of the points made by Mr. Calnan in the address which we reproduced in the October issue. For instance:

"Think for a moment of the difference it would make if the American public, each member of which is only an occasional buyer of our goods, had been educated for years to the vital need of thinking as much about the ultimate service of plumbing products as about the first appearance. Do you think the mail order companies, the direct-to-you's and all those who have put the art of selling ahead of the art of proper installation, would have even entered this field if we had not deliberately thrown away our strongest and our most distinctive sales weapon?"

In following pages, you will find reproductions of advertisements which have appeared in many large daily newspapers and which inform the general public that the services of a qualified plumber are essential. That line of approach to the public is well worth analysis and use by other manufacturers.

Over-Emphasis on Price

Price has been allowed to become a dominant element in the sale of plumbing products. The reason for this over-emphasis on price can be found in the sales methods of our industry.

To make that point even clearer it is worth recalling that with many products, the consumer through repeated purchases is thoroughly familiar with different price levels. The decision of that consumer to buy a familiar product is made with a clear understanding of the probable cost. The growth of chain stores in grocery and drug lines illustrates that point.

But the average consumer is only an occasional buyer of plumbing and heating items. On the major products of our industry, the overwhelming number of consumers have little knowledge of prices. The decision to buy such a major product is based upon the need for it, a need arising either from the wearing out of the old equipment or the desire to replace such equipment with more modern patterns.

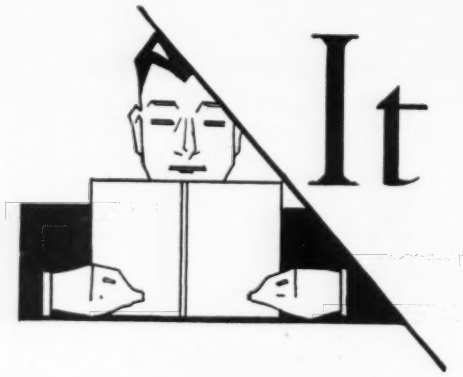
What Customers Want

When this comparatively untrained and uninformed consumer goes out to buy plumbing and heating goods the factor of price is by no means a dominant one. He wants good value, and an installation which will satisfy his pride and will function without trouble for a number of years. The manufacturers of this industry are in a position to offer him the quality of merchandise needed to satisfy those demands. The qualified master plumber is in a position to make the kind of installation wanted, one which will meet the legal requirements which years of experience have proved essential for the protection of health.

On Wrong Battlefield

Yet our sales psychology in the past few years has been increasingly in the direction of overlooking these elements which favor the established plumber and concentrating primarily on the price question despite the consumer's original lack of emphasis on the element of price. Other forms of distribution have been built up on a price basis. By emphasis on price we have been fighting our sales campaigns on a battle field selected by these outside forms of distribution. It is no wonder that the results have not been satisfactory.

The general advertising program revealed in October has the distinct advantage of offering the American public educational information which it needs—the best plumbing service comes from good products properly installed. In view of the years of good service demanded, the original price question drops into a position of comparative unimportance.



It happened

Wholesalers Accept Code as NRA Removes Disputed Exemption

Temporary Code Authority Set Up—Final Code for Industry

With the removal by the NRA of a clause exempting hardware wholesalers from the code approved for plumbing and heating wholesalers, the final barrier to the acceptance of the wholesalers' code was removed. As a result, the wholesalers of plumbing and heating products have now accepted the code, bringing all branches of this industry under NRA ruling. The complete code is reproduced in later pages.

The code for the manufacturers was approved in January, that for the plumbing contractors in May and the heating contractors in July.

The joint national committee which has been in charge of the code negotiations for the wholesalers met in Pittsburgh immediately after the NRA had withdrawn the disputed exemption. At this meeting the following were elected to the temporary code authority:

J. M. Chaplain, John Simmons Co., Long Island City, N. Y., President, Eastern Supply Association.

W. E. Price, The Knapp Supply Co., Muncie, Ind., President, Central Supply Association.

M. W. Dennison, Braman Dow & Co., Boston, Mass., Plumbing & Heating Wholesalers of New England, Inc.

A. M. Behrer, Behrer & Co., Inc., New York City, President, Jobbers' Credit Association.

N. J. Higinbotham, W. A. Case & Son Mfg. Co., Buffalo, N. Y., President, New York State Association of Wholesalers of Plumbing and Heating Supplies.

William A. Brecht, Hajoca Corp., Philadelphia, Pa., Tri-State Plumbing & Heating Supply Wholesalers Association.

Charles B. Wilson, Horne-Wilson, Inc., Atlanta, Ga., Southern Wholesalers Association.

H. F. Potter, Crane Co., Chicago, Ill., Chicago Credit Bureau.

E. I. Leighton, Leighton Supply Co., Fort Dodge, Iowa, President, Central Western Wholesalers Association.

L. B. Peeples, Crane Co., Los Angeles, Calif., President, Western Supply Association.

This temporary code authority will meet in Washington during November to submit its budget to the NRA and to recommend a plan for securing the necessary funds.

The approval of the wholesaler code fills up the gap which has existed for months between the manufacturers on one side, endeavoring to make their code effective, and the dealers on the other also operating under code control. With the NRA undergoing a period of policy change, the entire code movement looks quite different than it did at its inception. However, the rules of fair competition now subscribed to are a basis on which better business conditions may be developed and with all of its branches having accepted codes, this industry for the first time will be in a position to benefit from NRA.

"I do not hesitate to make the prediction that the Better Housing Program will prove to be one of the most effective agencies of general business stimulation that the government has yet taken up in its present efforts to bring about recovery."—Orville H. Greene, chairman, Lumber Code Authority.

Analyzes Service Ability of Business Papers

In a talk before the Chicago Business Papers Association on Oct. 17, Fred R. Davis, of the General Electric Co., emphasized that a business paper must demonstrate service ability. He ranked the importance of the business paper's services in the following order:

1. To its readers, since otherwise the paper has no reason for existence and has nothing to offer.

2. To the publisher, as otherwise the publication can not exist.

3. To the community and its welfare, meaning a service ability to an industry or a locality in which general welfare is considered rather than the advancement of any one individual firm.

4. Based upon its success in carrying out the above three services, the business paper then has service ability to offer to advertisers who are anxious to reach the readers and the community which the business paper has already proved capable of serving.

After all of these tasks are met, there are some individual services which a business paper can render to individual advertisers, such as a study of markets.

this month!

Plan National Wholesalers Institute

As a result of the adoption of the wholesalers code, a movement is under way to organize a national association of wholesalers. Tentatively, the name selected is the American Institute of Supply Wholesalers. The plan being discussed calls for an association of associations. The new organization would serve as the contact point with manufacturers, acting on behalf of the 10 associations of wholesalers which participated in the work of securing a national code.

Offer Plan to Meet Competition

By John J. Hall

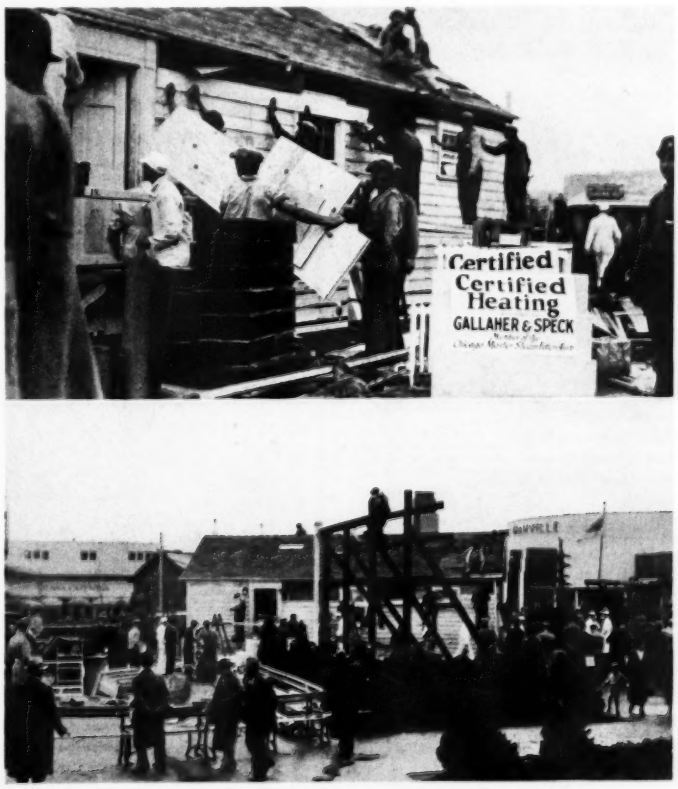
Vice President and General Manager of Sales, Standard Sanitary Mfg. Co.

The following address was delivered at the recent annual meeting of the Eastern Supply Association, held in New York City. It gives a thorough explanation of a serious effort to solve the "bewildering array of difficult problems which confront the so-called organized end of the plumbing fixture industry." It will, therefore, be read with more than ordinary interest by a majority of Domestic Engineering's *readers.*

The ferocity of the continued inroads being made against the so-called old line distributive setup in our industry must be apparent to us all. The situation has become one of common distress and general peril that will no longer brook delay. In the face of all our known problems there has been an expressed sense of helpfulness and some time even of defeat, that has paralyzed our combined activity. In referring to combined activity I mean the efforts of the regular manufacturer along with his regular jobbing distributor plus the registered master plumber.

Taking cognizance of the seriousness of the situation, Standard Sanitary Mfg. Co. has recently embarked upon a new pricing policy through the introduction of the trade price sheet. Being firm upholders of the traditional method of distribution, namely, manufacturer to wholesaler to plumber, our company believes that the move we recently inaugurated through the distribution of the trade sheets, marks the first important step toward the completion of the task of restoring to the regular plumbing fixtures industry the business that it justifiably should have—business that yesterday was ours, but that today, through various complications, has passed out of our normal trade areas. No longer are we as manufacturers attempting to establish suggested consumer or resale prices. On the contrary, we have published trade price

(Continued on Page 139)



Better homes through remodeling was the theme of one of the final spectacles at the Chicago Century of Progress. Started by the FHA, two 100-year old homes were re-erected in the fair grounds. One was remodeled in six hours, with thousands watching. And plumbing and heating were essential to this modernization

Qualified Plumber Advantages

A new significant note has begun to appear in the advertising of plumbing products to the public. It is to emphasize the fact that the service given by those products depends upon how well they are installed. This change in advertising and selling methods, if continued and widely used, means a great deal not only to plumbers but to the established and recognized plumbing industry.

In the October issue of DOMESTIC ENGINEERING, *under the heading of "Our Industry Has Failed to Use Its Best Salesman—the Plumber," President John J. Calnan of the National Association urged that such a change in selling methods be taken hold of by manufacturers. "Our industry has essential peculiarities upon which we should build rather than discard them," he said. If the American public had been taught to think of the vital*

"Standard"

PLUMBING FIXTURES

•

cost no more than others

Today, you can buy genuine "Standard" Plumbing Fixtures at prices no higher than others. Adjustments and reductions in prices have been made *without* lowering our high standard of quality, material or workmanship. "Standard" quality remains the same—nothing has been lowered but the price.

These new low prices extend the fullest measure of cooperation to the Federal Housing Administration in its campaign to encourage remodeling and new construction. Now, more than ever before, "Standard" quality is within the reach of every home owner.

To assure the purchaser the full value and service from "Standard" Plumbing Fixtures, they are sold through Master Plumbers. This is a protection to the buyer because even the best plumbing fixtures cannot function properly unless they are installed skillfully in accordance with the laws and regulations set up for the safeguard of public health.

Through study, training and practical experience, Master Plumbers are the only ones qualified to install or supervise the proper installation of Plumbing Fixtures. It has been truly said, "The Plumber Protects the Health of the Nation."

Today—your Master Plumber is ready and prepared to serve you. He is familiar with the provisions of the National Housing Act. He can advise you about the steps in getting a loan for modernization or new construction. He can help you select the proper Plumbing Fixtures. Guide you in choosing colors that harmonize—designs that match. Consult him *first* on your plumbing problems.

Harry W. Reed.
President

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.

The last three paragraphs of this nationally published advertisement, emphasizes the importance of the qualified plumber. Also, it points out the great importance of good plumbing service

Now Being Advertised to Public

need of good plumbing, properly installed rather than to let the emphasis too frequently fall mostly on price, Mr. Calnan questioned whether the mail-order companies and direct-to-you firms would have entered this field.

"I am glad to be able to inform you that we are receiving a higher level of intelligent co-operation than we have been offered by many manufacturers and wholesalers in the past," he says in that article. "They recognize we have a distinctive and preferred position which it is time to use as a major sales weapon." DOMESTIC ENGINEERING reproduces these accompanying advertisements, one by a manufacturer which appeared in many large newspapers and one by a York, Pa., wholesaler because they now mark a promising approach to an old problem.

TEACH YOUR DOLLARS TO HAVE MORE CENTS
IT IS WISE TO ECONOMIZE—BUT—BE SURE THE ULTIMATE COST IS LOWER
LET YOUR OWN EXPERT RESPONSIBLE MASTER PLUMBER QUOTE YOU
ON A
COMPLETELY INSTALLED AND GUARANTEED
HEATING SYSTEM OR BATHROOM
USING ONLY THAT QUALITY OF MATERIAL NATIONALLY RECOGNIZED AS THE FINEST
AND
SOLD ONLY THRU YOUR OWN CAPABLE PLUMBER
BATHROOM FIXTURES
Standard Sanitary Mfg. Co.
HEATING APPLIANCES
AMERICAN RADIATOR CO.
TROUBLE PROOF VALVES & FITTINGS
CRANE CO.
THERE ARE TWO METHODS OF BUYING
THE COST IS THE SAME -:- -:- WHICH DO YOU PREFER?
METHOD NO. 1
Consult your own Expert Responsible Master Plumber, a capable mechanic who is in business in your neighborhood and has been rendering good service for years. He will quote you an grade "A" material only made by the best manufacturers in the United States. This quality of material is only available through responsible master plumbers. Plumbers, who the manufacturer knows will not spoil his reputation and material through inefficient and uneconomical methods of installation. Your plumber will give you the best material obtainable at a price comparable with the little known inferior grade of material and added to that price will be the lowest installation cost available under any method of buying.
Finally when the job is completed and working satisfactorily, accept your plumber's Budget Plan or write him a check.
You have bought your dollars more cents, you have accumulated wisely for you have a trouble free, economically operating, quality job that will last a lifetime.
$51.50
$92.40
$21.75
METHOD NO. 2
Consult the direct-to-you advertisements in the Sunday newspaper or other pamphlets in circulation that claim to sell cheap through the medium of price lenders, used to attract your attention. These are the products, very often, of small incompetent manufacturers dumping job lots of questionable quality material on the market that cannot command a fair price in the legitimate field.
Make your selection, send your check in advance for this material and then employ a second-rate mechanic as may be recommended by the seller or a mechanic that you are able to obtain to make the installation the best way he can, more often than not, using a grade of pipe, fittings and valves behind the walls and under the floors that sound certainly would not make you free of expensive repair bills in the future. After the installation is completed and you have added up all your bills paid to the various suppliers and contractors, compare the installation, the material and your total cost with the price quoted you by your own responsible master plumber. Unfortunately it will be too late, but you will find that you could have had the finest material, the most expert and economical type of installation at approximately the same price, not to speak of future repair bills, high fuel costs when operating an inefficient heating system and additional labor costs in replacing defective items. This comparison is possible only due to the low overhead of your master plumber and high overhead of the direct-to-you type of distribution. Teach your dollars to have more cents. It is wise to economize—but—be sure the ultimate cost is lower.
NO DOWN PAYMENT
NO RED TAPE—NO CO-MAKERS—LOWEST OF ALL INTEREST RATES
INVESTIGATE NOW AND BUY
Under the New Budget Plan Contracts $240.00 to $2,000.00
$10.00 PER MONTH AND UP
3 YEARS TO PAY
DEPENDING UPON THE SIZE OF THE JOB
PHONE TODAY YOUR EXPERT RESPONSIBLE MASTER PLUMBER
THIS ADVERTISEMENT SPONSORED BY
THE CAREVA COMPANY, INC.
ENGINEERS AND WHOLESALERS

Better co-operation in selling the services of the qualified plumber are asked to build up the whole industry. This advertisement by a wholesaler is worth analysis

Six Win Prizes in October

Winners in Domestic Engineering Campaign Show Sales Skill

WITH the federal housing drive forging right ahead —1,000 loans daily and more jobs going for cash than with loans—the plumbing and heating industry continues to lead all others.

Here are the winners of the October awards:

H. A. McAuliffe of the McAuliffe Plumbing & Heating Co., Indiana Harbor, Ind., for his promptness in setting up his store as a bureau of FHA information.

Frank J. Klimm of the Frank J. Klimm Co., San Francisco, Calif., for his effective tying in with the FHA drive and for his excellent use of direct mail.

John M. Forhecz, Jr., of Garfield, N. J., for his business producing sales letter, and his active drive through newspaper advertising, including foreign language ones.

Joseph High of Joe High, Inc., Washington, D. C., for prompt action in going after FHA jobs and getting them. "If it's plumbing," writes Mr. High, "it's worth a little more to have it done right."

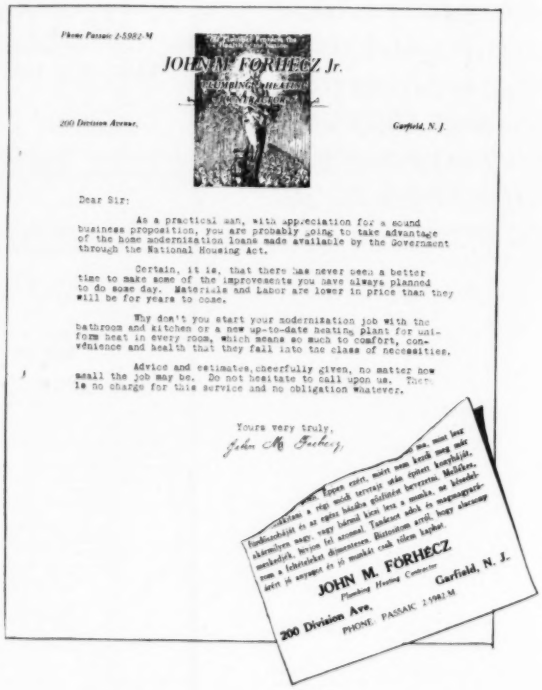
William Beck, Jr., of William Beck & Son, Englewood, N. J., for ingenuity in making sales.

H. J. Brandeles of H. J. Brandeles Corporation, Utica, N. Y., for effective newspaper advertising and for the results he obtained. He emphasizes that this is an "opportunity to pay out of income without excess penalty of finance rates."

Mr. McAuliffe, Mr. Klimm and Mr. Forhecz win a $7.50 copy of *Domestic Engineering Plumbing & Heating Catalog* and $5 in cash, each. Mr. High, Mr. Beck and Mr. Brandeles each win a $7.50 *Catalog*.

These pages illustrate selections from the examples we have received of how our readers are pushing the national housing drive.

Mr. Klimm (above) started a direct mail drive, imprinting some of the government's consumer booklets as shown below. Mr. Forhecz used the letter at the right to get business and the inset shows how he told the better plumbing and heating story in Hungarian newspaper ads. Mr. McAuliffe is shown at his desk in his store on which he had promptly displayed banners offering information on FHA loans.


JOHN M. FORHECZ Jr.
Garfield, N. J.
Dear Sir:
As a practical man, with appreciation for a sound business proposition, you are probably going to take advantage of the Home modernization loans made available by the Government through the National Housing Act.
Certain, it is, that there has never been a better time to make some of the improvements you have always planned to do some day. Materials and Labor are lower in price than they will be for years to come.
Why don't you start your modernization job with the bathroom and kitchen or a new up-to-date heating plant for uniform heat in every room, which means so much to comfort, convenience and health that they fall into the class of necessities.
Advice and estimates, cheerfully given, no matter how small the job may be. Do not hesitate to call upon us. There is no charge for this service and no obligation whatever.
Yours very truly,
JOHN M. FORHECZ
Garfield, N. J.
200 Division Ave.
PHONE PASSAIC 2-5982-M

Frank J. Klimm Co.
Incorporated
PLUMBING
Engineers
HEATING
Dealers
ELECTRICAL
Contractors
456 Ellis Street
Between Jones and Leavenworth
Phone: PRospect 0456
Dependable Since 1897
We assume complete responsibility for every detail of modernizing your bath, kitchen or heating.
One contract and at terms to suit your family budget.
One trip emergency repair service, City wide, day or night.
Skilled workmen, fully equipped service trucks . . . We offer you a free plumbing and heating inspection of your premises.

Similar awards—six prizes—will be given in November by DOMESTIC ENGINEERING for the best sales letters, advertisements and sales experiences, received by Nov. 15. Enter the contest now.

And a Grand Prize of $100 will be awarded at the close of the campaign.

• • • *WHAT TO DO*

Send us a prompt report of a sale you made, a successful sales idea you used, a photograph of your show window, a copy of your advertising, a copy of your sales letter or a good sales suggestion.

This will put you in line for one of the 18 Monthly Prizes, for one of the 90 Book Prizes and for the GRAND PRIZE of $100.

WHAT YOU MAY WIN

A $7.50 Domestic Engineering Plumbing and Heating Catalog and $5.00 in cash.

A $7.50 Domestic Engineering Plumbing and Heating Catalog.

A choice of one of six Books, all among our best sellers.

AND

The Grand Prize of $100.

WHAT WE OFFER

18 Catalogs	$135.00
9 Cash Prizes	45.00
90 Books	90.00
Grand Prize	100.00
TOTAL PRIZES	$370.00

Prompt action on the National Housing Campaign brought business to H. A. McAuliffe of Indiana Harbor, Ind.—and also a DOMESTIC ENGINEERING prize award.

Here Are The Rules • • •

1. Write a letter telling how you are taking advantage of the Federal Housing Act to sell plumbing or heating equipment.
2. Skill in writing will not be considered.
3. The enterprise and ingenuity of the dealer in using the F.H.A. to sell plumbing and heating material will be the determining factor.
4. The method, preferably, should have resulted in an order although this is not necessary.
5. Any contractor or dealer may enter and is eligible for a monthly prize and also for the grand prize. In case of a tie, duplicate prizes will be awarded.
6. The judges will be Mr. John J. Calnan, President of N.A.M.P. and two others chosen for their knowledge of the Plumbing and Heating business and of the great National Housing Campaign. The decision of the judges will be final.
7. Letters to be considered for the December award must reach us by noon, November 15th; for the January award, by noon, December 15th. The monthly prize letters will also be eligible for the grand prize but contestants are limited to one monthly prize.
8. All letters received anytime before noon, January 15th, 1935, the final closing date, including monthly prize letters, will be eligible for the grand prize. Contractors may send in more than one entry if desired.
9. In order to report promptly to its readers the best and most practical sales ideas, DOMESTIC ENGINEERING has the full privilege to use and publish all or any part of the material received.
10. Letters should be sent to the Prize Editor, DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago.

Heating Leads in FHA Loans

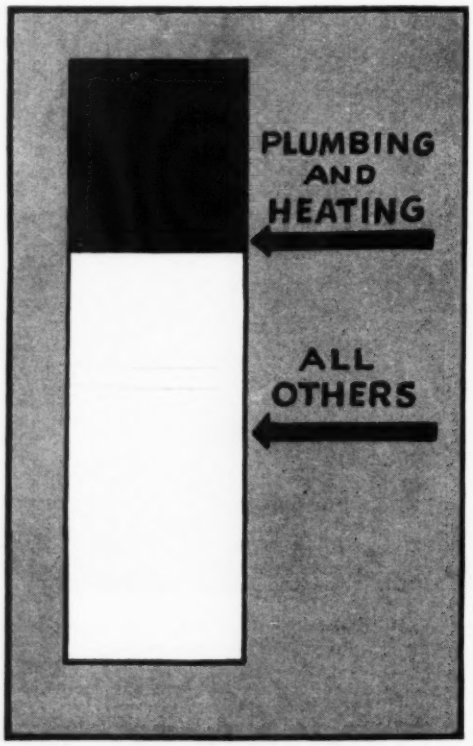
Late records shed an interesting light on the class of people taking advantage of the housing program.

Figures made public by the Federal Housing Administration on 2,344 modernization and repair loans selected at random, totaling $1,221,437, and covering key sections of the country, shed an interesting light on the classes of people taking advantage of the Better Housing Program, and how they are using their loans. The average loan for these was $521.00.

Public employes lead the way in this special group, with 16.13 per cent of the total loans. Clerks follow closely, having received 15.27 per cent of the loans. Next in line are skilled mechanics, with 13.69 per cent. Hot on the heels of the mechanics are sole owner business men, who received 12.25 per cent of the loans made under the terms of the national housing act.

The loans went for the most part for the improvement and installation of heating systems, this type of work comprising 17.71 per cent of the total number of loans. Interior decorating also proved popular, 15.3 per cent of the loans going for this purpose. Plumbing is also receiving attention, 11.74 per cent of the loans going into this branch of the building industry. Exterior repairs, outside painting and roofing follow in the order named. Plumbing and heating are receiving 29.45 per cent or an average of $29.45 out of each $100 loaned.

Occupation	No. of Loans	Percentage
Public Employees	378	16.13
Employees (clerical)	358	15.27
Mechanics (skilled)	321	13.69
Business Men (sole owners)	287	12.25
Salesmen	159	6.78
Corporation Officers	118	5.04
Laborers (unskilled)	144	6.14
Renting Rooms or Apartments	99	4.22
Business Men (partners)	74	3.16
Department Heads	74	3.16
Professional Men	104	4.44
Foremen	66	2.82
Storekeepers	29	1.24
Drivers and Truckmen	42	1.79
Barbers	11	.47
Railway Employees	20	.85
Landlords	28	1.19
Churches	1	.04
Farmers	31	1.32
	2,344	100.00



17.71% of FHA loans go for heating—11.74% for plumbing or $29.45 of every $100

Of the loans made, following are the number of jobs and the purposes:

Heating	997	17.71
Redecorating (interior)	861	15.30
Plumbing	661	11.74
Exterior Repairs	555	9.86
Painting Outside	546	9.70
Roofing	541	9.61
Remodeling—General	395	7.02
Interior Repairs	372	6.61
Cementing	216	3.84
Lighting	163	2.90
Remodeling—Bathroom	121	2.15
Additional Rooms	123	2.19
Remodeling Kitchen	63	1.12
Miscellaneous	14	.25
	5628	100.00

Pacific Wholesalers Push FHA

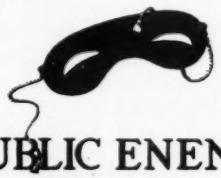
As a definite stimulant to the commencement of home modernizing and maintenance work, with the aid of federal insurance of loans, under the provisions of the housing act, the Northern California Plumbing and Heating Wholesalers Association, Inc., of San Francisco, has embarked on a comprehensive advertising campaign to be carried on in thirty-one cities and towns in the northern and central sections of California. Three large scale advertisements will be run in newspapers in these communities at two-week intervals. The first appeared on Oct. 17.

In order to establish a closely knit tie-in, "blowups" of these advertisements were mailed to all plumbing and heating contractors, which they have been asked to display prominently. In order to make this tie-in still more effective, retailers are further asked to supplement the association's publicity with suitable advertisements of their own, to run concurrently. Toward this end, the retailers are also supplied with dummy advertisements to furnish their local newspaper. These supplementary dealer advertisements, too, feature federal housing loans for plumbing and heating modernization.

Reproductions of these advertisements appear on the facing page.

The Northern California Plumbing and Heating Wholesalers Association is composed of thirty-four firms with headquarters in San Francisco, Oakland, Sacramento, Fresno, San Jose and Stockton. D. L. O'Hair of P. E. O'Hair & Co. is president; F. F. Elliott of Crane Co. and H. E. Oliphant of Tay Holbrook, Inc., vice presidents; and J. R. Winzeler of

California Wholesalers Start Big FHA Sales Drive



PUBLIC ENEMY *Number One*

Public Enemy Number One is something more than a ruthless racketeer.

It is lack of care . . specifically, *lack of care of plumbing and heating equipment*. Its total cost exceeds the tribute paid to organized crime. Not all of this "lack" has been deliberate. Many are fortunate in having saved their homes without counting the cost of their neglect of its equipment. But the effects are evident.

The liberal loans available under the Federal Housing Act are two-fold in their immediate benefits: neglected plumbing and heating equipment can be restored or replaced at once. Today the cost of any plumbing and heating repair or replacement is known to the fraction of a penny. Material costs are at least 40% below the 1926 price level. But no one can estimate what the actual cost will be six months from today.

Join the ranks of those who have learned that procrastination is a costly indulgence . . who know that their comfort, peace-of mind and health can be no better than the home which houses them . . who look boldly into the future and are unafraid. And who also know the saving which today's lower cost of material and labor effects.

Telephone your plumbing and heating contractor. He will shoulder all the details which a F. H. A. loan requires and do it without obligation. *We recommend him to you.*

NORTHERN CALIFORNIA PLUMBING AND HEATING WHOLESALERS ASSOCIATION, Inc.
785 MARKET STREET, SAN FRANCISCO

{Are you familiar with the new inventions in plumbing and heating equipment? Their attractive design, compact unitary and labor saving features make them well worth your investigation.}

BETTER HOUSING PROGRAM

100%
60%

THE VOICE of figures...

A difference of at least 40% exists today between the present cost of plumbing and heating equipment and its 1926 price level. No one can estimate what the actual cost will be six months from today.

It becomes an economy, therefore, to borrow through the Federal Housing Act's co-operation, in order to save.

Neglected equipment is expensive to maintain. Just as a wornout automobile consumes too much gas and oil, just so does heating equipment devour fuel. Plumbing, too, through neglect, invites leakage, bursting, and presents a serious menace to health.

Actual figures, then, can speak for themselves in prompting you to no longer delay the modernization of your home's most important equipment. The personal satisfaction of possessing modern equipment which delights the eye, relieves the mind, and lessens the drain on pocketbook should also have some weight in bringing about your decision.

The borderline self-denials of the past four years require an antidote.

An expenditure in those things which add to everyday happiness becomes a priceless investment.

Telephone your plumber. He can handle the complete modernization of your kitchen, bath rooms or heating plant through a F. H. A. loan.

We recommend him to you.

NORTHERN CALIFORNIA PLUMBING AND HEATING WHOLESALERS ASSOCIATION, INCORPORATED
785 MARKET STREET, SAN FRANCISCO

{Time's going out of your heating equipment now will protect you from its future fuel waste this winter. An estimate of minor repairs bearing the new "Better Housing" label will cost you nothing.}

BORROW.... *to* SAVE

Today the cost of any plumbing and heating repair or replacement is known to the fraction of a penny. Material costs are at least 40% below the 1926 price level. But no one can estimate what the actual cost will be six months from today.

Costs may be higher in terms of your dollar's purchasing power.

Negotiating a Federal Housing loan now, to make necessary plumbing and heating replacements, becomes, at once, sound economy. You borrow to save.

Not alone is that true, but you enjoy at once all of the new, stimulating beauty, the known economy and the sanitary safeguards which modern plumbing and heating inventions have created for your well being.

Hidden beneath the surfaces of neglected equipment are unseen menaces to your health and pocketbook. Accumulated refuse which in plumbing endangers your health and through corrosion promotes leakage and bursting. In heating equipment such refuse pyramids fuel costs.

Modernize by all means . . but before surface improvements are undertaken, see to it that your plumbing and heating equipment is up to par.

Discuss costs with your plumber. Actual figures frequently prove that replacement becomes an economy. His experience and advice are yours without obligation. *Telephone him.*

NORTHERN CALIFORNIA PLUMBING AND HEATING WHOLESALERS ASSOCIATION, Inc.
785 MARKET STREET, SAN FRANCISCO

{This is an opportune time to have your heating plant thoroughly gone over before winter comes. Experienced experts are ready to serve you at once.}

PLUMBING
AND
HEATING
Take First Place
in any
MODERNIZATION
PLANS

Call (Telephone No.)
NAME OF DEALER
Address Etc.

WE ARE
HEADQUARTERS
For
Plumbing
AND
Heating
Modernization
Plans

Call
(Telephone No.)
NAME AND ADDRESS
ETC.

CALL

(TELEPHONE NUMBER)

FOR INFORMATION
Regarding the terms of this Federal Housing Act. Detailed costs of any PLUMBING or HEATING improvement cheerfully furnished

DEALER'S NAME
ADDRESS, ETC

Federal Housing LOANS

Require the services of an approved contractor for any

PLUMBING
or
HEATING
IMPROVEMENT

TELEPHONE
(Number)

NAME OF
DEALER
ETC.
HERE

Estimates

COVERING THE COST OF ANY PLUMBING AND HEATING IMPROVEMENT CHEERFULLY FURNISHED . . . . . .

TELEPHONE NUMBER
DEALER'S NAME
ADDRESS, ETC

Federal Pipe & Supply Co., F. J. Chittenden of Walworth California Co., W. A. Shaw of West Coast Sanitary Manufacturers and R. P. Olsen of Olsen & Heffernan, are directors. J. E. Heaslett is secretary-manager, with headquarters at 785 Market street, San Francisco.

More Wholesalers Back FHA

Many wholesalers of plumbing and heating supplies are cooperating with the federal housing program. Those wholesalers who had written DOMESTIC ENGINEERING regarding their plans were listed in our October issue. The following additional wholesalers, whose letters were not received by us in time for the last issue, are also working with the housing program, acting as centers of information and providing arrangements for the financing of such loans:

Brooklyn, N. Y.
18th Ave. Plumbers Supply Co.
3005 18th Avenue
Grand Rapids, Mich.
Richards Mfg. Co.
135 Front Street, N. W.
Jacksonville, Fla.
Horne-Wilson, Inc.
214 East Bay Street
Kansas City, Mo.
Dempster Mill Mfg. Co.
1307 West 10th Street
Long Island City, L. I., N. Y.
Conran Supply Company, Inc.
26-16 Skillman Avenue
Monrovia, Calif.
Monrovia Plumbing Supply Co.
909 Myrtle Street
Philadelphia, Pa.
Superior Plumbing Supply Co.
2015 South 11th Street
Pittsfield, Mass.
Pittsfield Mill & Plumbing Supply Co.
34 Depot Street
Providence, R. I.
Providence Pipe and Sprinkler Co.
167-169 Dorrance Street
Vineland, N. J.
Endicott Supply Company
Boulevard and Pear Streets

Pushes Loan Plan

In order to help heating contractors increase their sales this fall and winter, the Spencer Heater Co., manufacturer of magazine feed boilers, tied in with the FHA drive with a new time payment plan. This plan follows the provisions of the National Housing act and extends heating equipment buyers the liberal terms of no down payment.

In order to make sure that the public is fully acquainted with the new time payment plan, the Spencer company is conducting a newspaper advertising campaign in 22 cities. Emphasis is also put on fuel savings.

Signs 5,000 for FHA Drive

A definite interest in heating modernization and a potential market waiting to be developed, have been revealed by early returns in the American Radiator Co.'s dealer aid campaign in connection with the federal government's Better Housing movement, according to Marshall Adams, sales promotion manager for the company.

More than 5,000 dealers have already signed up for the campaign, and reports from all parts of the country indicate that these dealers are finding a ready market, he said. As the keynote of its campaign, the company is advertising a "Budget Book" showing how to prepare a budget for all types of modernization, to obtain for contractor-dealers, who have copies of the book to distribute, the names of persons planning to spend any money on modernization.

In the early returns obtained through newspaper advertising from more than 4,000 persons who expressed an interest in some form of modernization by requesting a copy of the Budget Book, 28 per cent signified a definite interest in heating modernization at the time they made their request.

Others signified an interest in heating changes by returning a special card enclosed in the Budget Book, and reports from contractors showed still other cases where through personal contact persons were persuaded to spend part of their money on heating after the request for the book showed that they were planning an expenditure for modernization work of some type.

As an additional aid to the 5,000 contractor-dealers who have signed up for the dealer-aid campaign, the American Radiator Company resumed its radio broadcasts during the past month.

Early returns indicated that applications from home owners for work to be done under the plan were averaging more than 100 a day.

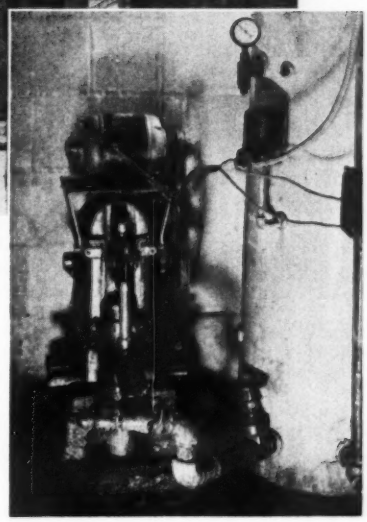
Meetings to rally contractor-dealers in support of the federal housing movement and induce them to take advantage of its dealer aids, are being held by the company in towns and cities throughout the United States at the rate of about 80 per week. Attendance at meetings has varied from about 30 persons to 350, depending upon the size of the community.

Hajoca Makes 107 FHA Loans

The Hajoca Corporation of Philadelphia, manufacturer and wholesaler of plumbing and heating products, swung in quickly on the Better Housing Program. Its first newspaper advertisements included a letter sent on Aug. 24 by President William A. Brecht to his entire sales organization, urging prompt sales support for the program.

The results are convincing.

Just one month later (on Sept. 24), that company had secured 107 jobs amounting to more than $33,000. Of these, 77 per cent were for heating, 17 per cent for plumbing and the balance for miscellaneous repairs. Of the company's 27 branches, 21 have secured business from the Better Housing Program.



There seem to be few restrictions on the possibilities for sales. New water system applications are being found daily

Dealers Sell Water Systems

Survey Points to Market in Air Conditioning Field

THERE has been a great deal said about the possibilities in selling water supply systems to home owners in both rural and city sections. As has been announced in earlier isues, the Electric Water Systems Council launched a campaign to run from the first of last August to the first of next October, the goal of which is to promote the sale, throughout the country, of 125,000 electric water system units.

With all of this activity in mind, the question naturally suggests itself as to what actually is being done. Accordingly, for some time the editors of DOMESTIC ENGINEERING have been making a survey to learn what plumbing contractor-dealers, who sell water supply systems, are doing. The results of this survey should be of considerable value to plumbing contractor-dealers who actually are handling water supply systems or who contemplate taking on this line.

It was found that water systems very definitely are being sold. Not only are they being sold this year, but they were sold in substantial numbers last year. Several readers who were approached reported sales of last year amounting to forty-five or more systems.

It was found from this survey that there seems to be no restriction as to where pumps can be sold. For instance, one contractor-dealer located in Massachusetts, who sold forty-five water supply systems last year and who sold twenty this year up to August 31, reported installations in manufacturing plants, schools and churches, although most of his installations were made in homes. Another reader who sold twelve pumps last year and five pumps this year up to the middle of September, listed installations in connection with air conditioning systems and manufacturing plants as well as homes. Still another reader who sold four pumps last year and six pumps this year, lists a high school, a post office building, a grocery store, a store and apartment building serving twelve stores, apartments and offices, and six homes among his installations.

Water supply systems are being sold.

Fig. 1—Since these homesteads are on one to five acre plots, they have individual sewage disposal systems

Government Promotes Trend Toward Rural Plumbing

It is significant that in these homes, which are designed to be low in cost, complete plumbing installations are specified. Quality also listed

THERE is an extensive housing movement now well under way, which may develop into something of importance to the plumbing and heating industry.

We allude to the construction of groups of low cost homes by the Subsistence Homesteads Division, which is operating under the United States Department of the Interior.

Very briefly, the idea of subsistence homesteads is about as follows: The government recognizes that many thousands of families are left stranded for various reasons, through no fault of their own, and must be helped not only to live, but to gain a living.

Included in this classification are many towns and villages surrounding mines or industries which have been closed down for a period of time, or given up entirely,—where lumbering operations have come to an end, and so on.

The basic aim of their relief program is to combine part-time wage work with part-time farm work. Dependent on various special and local conditions, those subsistence homesteads already built have included anywhere from one to five acres of land, thus providing sufficient space on which to raise the family's requirements in vegetables, eggs and poultry, milk, etc.

Nearly 600 subsistence homesteads have now been completed or are in process of construction.

These homes contain three, four and five rooms. These homesteads, including land and outbuildings, are selling for $2,500 to $3,200.

The architecture of these homes is being kept "native" as far as possible. For instance, in a Tennessee project the houses are being built of native stone and rough board-hewn timbers; in Arizona adobe is used, and so on.

Back of the direct planning that is going on by the Government, is the hope and expectation that with the Government projects as an example, many industrial plants as well as local public, semi-public and private agencies will see in this program the solution of their own problems and work out similar programs.

In Figs. 1 and 5 are shown two typical homes constructed under the subsistence homesteads program.

We are naturally interested in the plumbing that goes into these houses. This work is being held to strictly high standards, and all work has to comply with the terms of the Hoover Code. One of the officials of the Subsistence Homesteads Division had this to say,—"When we insist on the Hoover Code, we know that we are building with tested methods, with health and long life in mind."

In this work the plumbing is almost entirely on the first floor, and this of course makes it extremely simple.

In Figs. 2, 3 and 4 we show three typical elevations of plumbing allowable under Subsistence Homesteads requirements.

Drainage disposal from these subsistence homesteads houses is entirely into septic tanks, inasmuch as seldom if ever will location of the houses be such that public sewers will be available.

Septic tanks are in use, in sizes, graded according to the number of occupants. These are as follows:

200 gal. septic tank for 1- 5 users
250 gal. septic tank for 6- 8 users
300 gal. septic tank for 9-11 users

One hundred feet of drain tile is the amount used for disposal system of the 200 gal. tank, 125 ft. for the 250 gal. tank, and 150 ft. for the 300 gal. tank. These amounts will vary greatly from the above figures, in land below normal in its ability to absorb sewage.

The subsistence homesteads projects are widely scattered and in various stages of planning and construction.

Information concerning these projects should be of value to many of our readers, in their campaigns to get new business, and we are therefore listing the projects below. We might add that we have inquired directly concerning the method of allotting contracts, and learn that "The work is done under contract according to the usual system of competitive bidding."

No general specifications for plumbing fixtures are issued apparently, by the Subsistence Homesteads Division, and undoubtedly they vary in different localities, for different houses.

A statement by one of the officers on this general subject is as follows;—"Our homesteads cannot have elaborate plumbing or anything that is other than usual. We do insist however, that the plumbing fixtures be up to

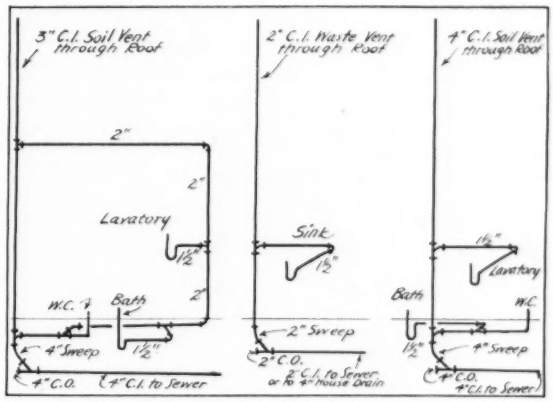


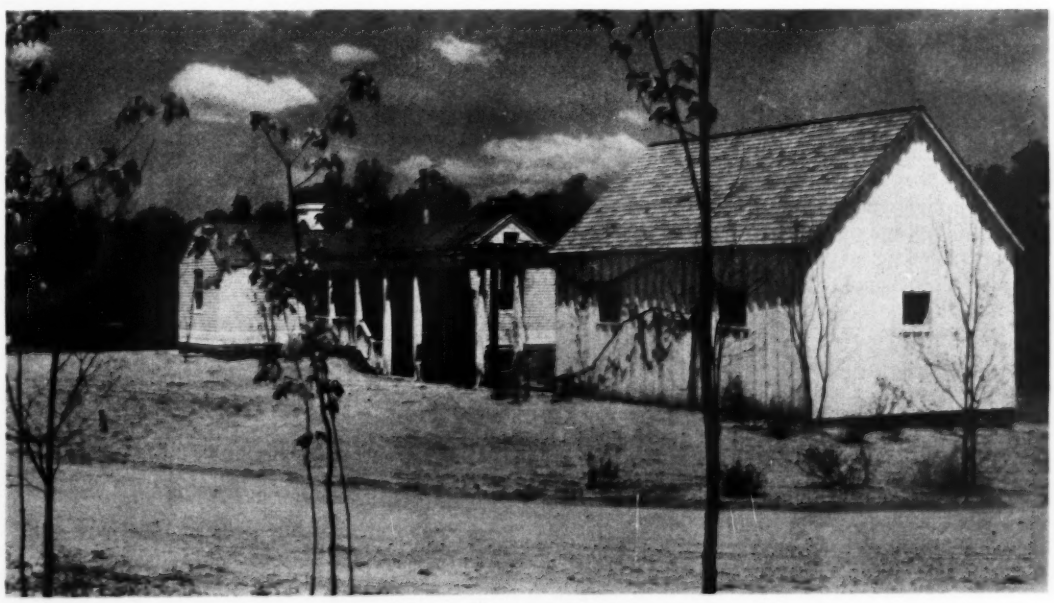
Fig. 2—At left; Hoover code method of wet venting. Fig. 3—Center; Individual fixture venting. Fig. 4—Right; Hoover code method of stack venting

date, of good quality, and suited to meet the needs of the various types of families accommodated. If checked up through manufacturers and jobbers, the fixtures provided in subsistence homesteads houses would prove to be the largest selling designs."

Inasmuch as there is apparently close study to suit individual needs and tastes of families who are to occupy these houses, we presume that quality, type and design of plumbing fixtures may vary considerably. We under-

(Concluded on page 147)

Fig. 5—Here is a view of another of the homesteads. Both the home and the outbuildings are shown



Dolan and Olson Their Accounts

Members of noted plumbing and heating firm combine business with pleasure on a fishing trip and uncover substitute for the customary "please remit"

Fig. 1—"It was a nice little suburban home"

JUST about a year ago we completed the installation of the plumbing and heating in a nice little suburban home. It was a mighty fine job—hot water heat, oil burner, two bathrooms and an extra toilet and lavatory on the first floor—deep well, electric pump, septic tank and overflow cesspool.

And everybody was happy until we got a hurry-up call one day and found that the plumber had neglected to drill a hole in the tile floor in which to set the peg on the end of the lavatory leg. He had done so in one bath room, but thought that it was not necessary in the other one. Result, the kids got to playing "Indian and Cowboys," bumped into the leg and broke out a section of the lavatory.

That meant a new lavatory, plus the cost of making the change.

Then they found a lack of hot water and investigation disclosed the fact that the well water contained certain substances which adhered to the inside of the coil, plugging it up and stopping circulation.

That meant a job of cleaning, but it was on the owner.

Nothing more for a couple of months and then it came. Not out of a clear sky, but on the contrary out of a very wet one. It was just pouring down. A long, steady all day rain. The first call came in about 11 a. m., and for the next hour they came in at 5 minute intervals. Everyone in the house took turns at calling.

The sewer would not carry off any of the water and waste.

We tried to convince them that little could be done that day on account of the rain, but they insisted that something must be done. We tried rodding out the line, but without any success. Then had the laborer dig down to the top of the septic tank.

And it was some digging!

Clay, clay that sticks to shoes and shovels; clay that does not absorb any water. And the rain falling all the while, but the laborer stuck to his task and finally reached the top of the tank.

In the mean-time both the owner and the architect had arrived, because they wanted to find out exactly what was wrong. They knew, of course, that it was something that the plumber had either done or failed to do, and both wanted to be on the job so as to be able to say "I told you so."

The laborer cleared off the top of the tank, loosened the nuts on the bolts holding the cover in place, lifted off the cover, and found one of Ghandi's full dress suits!!

The mystery was solved. Evidently the maid had washed out one of the babies' outfits in the toilet and had

Fig. 2—"The laborer found one of Gandhi's full dress suits"

Learn How to Collect Without Usual Delays

flushed it through and into the piping. It had traveled as far as the tank and had caught at the inlet in such a manner as to effectively close it tight.

Both the owner and the architect were "regusted" and the plumber was decidedly happy because the fault and the cost were on the other fellow and not on him.

Went off on a little week-end vacation trip and picked up a few fish, a lot of sunburn, and a good idea. The second day out, it rained all day and we couldn't fish, so a couple of us went to town to get some supplies.

While the other fellow was doing the shopping, I dropped into the Sanitary Plumbing and Heating Co.'s store and found that the proprietor was an old friend. So we talked about this and that but always getting back to the plumbing business, or rather the lack of it.

Finally a supply house salesman came in and we all visited a bit; then the plumber ordered a few items for

Fig. 3—"Picked up a few fish, a lot of sunburn and a good idea"

a job that he was about to start, and after the salesman had written up the order he directed him to ship C. O. D.

The salesman said that it was not necessary to ship that way, but this chap insisted and finally explained his position, saying, "I have been doing a lot of work the last few years for people that have always been good pay and some of them could be good pay right now, if they wanted to, but they have picked this as being a good time to hold onto their shekels just as long as they can.

"So I have done job after job, only to find myself holding the bag and after waiting month after month for customer after customer I hit upon the idea of being 'broke.'

"Now I book the orders, find out what the material will cost, add a few dollars to it for labor and overhead,

Fig. 4—"If they check up, the station agent tells them they are being shipped C. O. D."

call on the customer and tell him that I have ordered the goods, but that they are coming through C. O. D., and I will need the money when they arrive so as to be able to get them from the station agent.

"If they check up the station agent tells them that they are being shipped C. O. D. and that he cannot part with them until he has the money. The result is that they dig up enough in advance to pay for the goods and a part of the overhead and labor.

"Course it didn't look very good for me, but it gets the money, and I don't spend my nights tossing around in bed wondering how to get money for this fellow and that fellow.

"It's almost as good as selling beer. You have to put your money on the bar, table or counter to get beer, and I wouid rather be the fellow that gets the money, even if the people think that I am on a C. O. D. basis, than carry on as I used to when everyone was passing the buck and making me look like a banker and not a plumber."

(Continued on Page 124)

Fig. 1—This photograph shows the exterior of Mr. Inscho's place of business

He Sells Idea of "Fix It Now or Else Pay Double!"

Birmingham Contractor Uses FHA, Downtown Show Window and Neglected Bathrooms to Increase Business

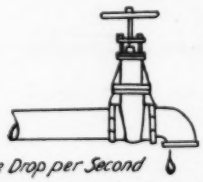
IS IT possible to merchandise bathroom repairs effectively? Yes, says E. P. Inscho of E. P. Inscho & Sons, of Birmingham, Ala., who has 30 years of success in the plumbing business behind him.

Throughout his experience as a specialist in bathroom maintenance for the better class of homes, Mr. Inscho has borne down on his slogan, "Fix It Now or Else Pay Double." This is his variation of the old saying, "A Stitch in Time Saves Nine."

As an example of his enterprise as a merchandiser he recently sponsored an unusual display in a downtown show window loaned for that purpose by the Birmingham Electric Company, a local utility. The window has a model lighting system and the utility allows its use in turn by merchants as a demonstration of the drawing power of good lighting.

The display was built around the idea of having a leaking faucet fixed without delay to avoid an excessive water bill and the necessity of having to pay double.

A blueprint of a leaking faucet was shown in the window with the reminder that it "works 24 hours per day" with the following results:



1 Minute Loss is..1/10 Ounce
1 Hour Loss is.....6 Ounces
1 Day Loss is....1¼ Gallons
1 Week Loss is.....8 Gallons
1 Month Loss is....34 Gallons

		Gals. Per Month	Gals. Per Year
¼"	Opening	408,620	4,983,440
3/16"	"	299,337	2,752,040
⅛"	"	102,152	1,225,824
1/16"	"	25,706	308,472
1/32"	"	6,382	76,596
Just dropping		448	5,394

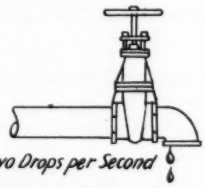
The display proper was divided into two parts, one showing an old water closet and the worn parts which it contained and the other a new and modern-type closet with the rust-proof parts it contains.

On one side of the background was the sign "competent" with a picture under it of Mr. Inscho and his horse and dray used 25 years ago in the plumbing business. On the right side of the wall is a sign "Qualified." under which Mr. Inscho shows his membership in the National Association of Master Plumbers and also the state association. His state license and his certificate from the state board of plumbing examination are displayed as well.

On the outside of the window a mail box contained some of Mr. Inscho's business cards with the suggestion to "take one and tack me up, you may need me in a hurry."

"Throughout our experience in the plumbing business we have specialized in bathroom repairs, always urging property owners to have needed work done immediately in order to save annoyance and increased water bills," said Mr. Inscho.

"Our service in the repair business has enabled us to make entree into the better homes where often we have been able to induce owners to completely modernize their bathrooms. Now that Federal loans are available for



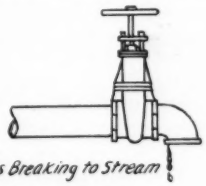
1 Minute Loss is....⅓ Ounce
1 Hour Loss is.....20 Ounces
1 Day Loss is.....3⅓ Gallons
1 Week Loss is....26 Gallons
1 Month Loss is....2 Barrels

such work we expect to develop more business than ever as thousands of homes need entirely new bathroom equipment."

The accompanying sketches indicate water losses for different sized leaks.

The question of how much water will leak through various sized holes is one which is asked very often by readers of DOMESTIC ENGINEERING. It indicates that in their selling efforts their attempt is to build up in the minds of their prospects the actual losses in dollars and cents for water alone when plumbing repairs are delayed. This does not mention the familiar sales points which center about the inconvenience and the accelerated depreciation in mechanical plumbing equipment as a result of leaks. The idea of selling plumbing repairs very logically can be based on the fact that there is little or no economy, and sometimes very considerable loss in delayed repairs.

Fig. 2—Here is the display window which was loaned for the "Fix it now" exhibit



1 Minute Loss is....2 Ounces
1 Hour Loss is.....1 Gallon
1 Day Loss is.....24 Gallons
1 Week Loss is...3½ Barrels
1 Month Loss is...14 Barrels

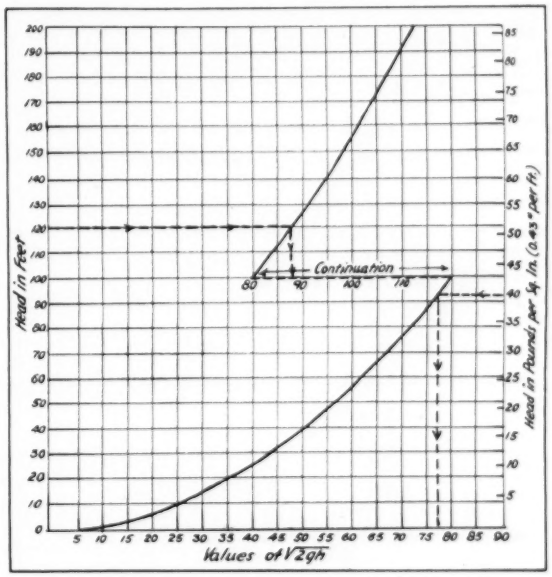


Fig. 3—This chart is used in the following question and answer

The following inquiry from one of our readers is on this same subject of leaks and is representative of the many inquiries we receive.

TO THE EDITOR:

Some time ago I had a small chart put out by some water meter company which stated that in a period of 24 hours at 40 lb. pressure a given size of outlet about 170 gallons of water will be wasted. I want to know how much would be wasted through the same size of opening at other pressures and how to calculate same.

Mass. D. M. R.

TO THE READER:

The amount of water flowing from a leak in a pipe is difficult to calculate unless some very arbitrary assumptions are made such as that the leak opening is of a certain shape, has edges of a certain nature and so on, all of which are pretty likely not to occur in any particular

leak, so that calculations based on these assumptions are likely to be very approximate. Probably the amounts quoted in the publication you mention were based on a certain diameter of round hole with sharp edges; i.e.. the standard orifice plate through which the flow of water has been experimentally tested and a formula developed.

1 Minute Loss is...7½ Ounces
1 Hour Loss is....3½ Gallons
1 Day Loss is.....84 Gallons
1 Week Loss is..11½ Barrels
1 Month Loss is....50 Barrels

The flow through such an orifice may be expressed by the formula

$$Q \text{ equals } A \times 0.61 \times \sqrt{2gh}$$

when

Q is the cubic feet per second
A is the area of the orifice in square feet
0.61 is a constant
$\sqrt{gh}$ is the square root of the acceleration of gravity (or 32.16) multiplied by the head in feet
$Q \times 60$ is the cubic feet per minute
$Q \times 3{,}600$ is the cubic feet per hour
$Q \times 86{,}400$ is the cubic feet per day
To change Q to gallons multiply by 7.5

To put this formula in workable shape the chart shown in Fig. 3 gives on the left hand scale the head in

1 Minute Loss is...23 Ounces
1 Hour Loss is....11 Gallons
1 Day Loss is.....260 Gallons
1 Week Loss is....36 Barrels
1 Month Loss is..156 Barrels

feet and on the right hand scale the corresponding head in pounds per square inch. Either of these scales may be used and the corresponding value for $\sqrt{2gh}$ may be read from the scale along the bottom of the chart. Thus for 120 ft. of head begin at the left hand scale at 120 ft., and run toward the right until the curve is intersected and directly under this intersection on the bottom scale will be found 88 as shown by the dotted leader line on the chart. Similarly for 40 lb. pressure begin at 40 lb. on the right-hand scale and run to the left until the curve is intersected and directly under this intersection is read 77.5; this also is indicated by dotted leader lines on the chart. Thus the value of $\sqrt{2gh}$ for any head either up to 200 ft. or to 85 lb. easily may be determined.

The areas of small orifices in square feet involve some calculation and the list following will be of much help.

Diam of Orifice In.	Area Sq. Ft.	Diameter of Orifice In.	Area Sq. Ft.
1/16	0.00002	9/16	0.00173
1/8	0.00008	5/8	0.00213
3/16	0.00019	11/16	0.00258
1/4	0.00034	3/4	0.00307
5/16	0.00053	13/16	0.00360
3/8	0.00077	7/8	0.00418
7/16	0.00104	15/16	0.00479
1/2	0.00136	1	0.00545

With this information we are now ready to calculate; for example, what will be the leakage per second through a 1-in. diameter orifice with a 50-ft. head? Reference to the chart for 50-ft. head shows the value of $\sqrt{2gh}$ to be 57. Reference to the table above shows that the area in sq. ft. of a 1-in. orifice is 0.00545. The formula now becomes

$$Q \text{ equals } 0.00545 \times 0.61 \times 57$$

or

Q equals 0.189 cubic feet per second
and, changing this to gallons per minute,
0.189×60 min. $\times$ 7.5 gal. is 85.05 g.p.m.

In the case you cite where 170 gal. was wasted, this must have been a very small hole as we can see by the

1 Minute Loss is...39 Ounces
1 Hour Loss is....18 Gallons
1 Day Loss is....8½ Barrels
1 Week Loss is....60 Barrels
1 Month Loss is...255 Barrels

following that a 1/16-in. hole will considerably exceed this amount.

With a 1/16-in. hole the area of the hole in square feet is 0.00002 sq. ft. (see previous table) and the pressure is 40 lb. which from the curve already has been found to give a value for $\sqrt{2gh}$ of 77.5 so that the formula becomes

$$Q \text{ equals } 0.00002 \times 0.61 \times 77.5$$

or

Q equals 0.00094 cubic feet per second
which changed to gal. per day is
$0.00094 \times 7.5 \times 86{,}400$ which is 576 g.p.d.

This makes it look very much as if the hole you have reference to must be smaller than 1/16 in. diameter—possibly 1/32 in. With the information presented you

1 Minute Loss is...83 Ounces
1 Hour Loss is.....39 Gallons
1 Day Loss is....18½ Barrels
1 Week Loss is...130 Barrels
1 Month Loss is...555 Barrels

should have no difficulty, after reading the instructions carefully and following through the examples offered, in calculating the leakage from any size of hole and for any pressure within reasonable limits.

"Accurate estimating is the bulwark of the contractor, protecting his peace of mind and pocketbook"

Estimates—

Notes on How to Use Them to Protect Your Heating and Plumbing Profits

By A. E. Knibb

LISTING pipe and fittings is a relatively simple task, as most of the material is shown on the drawings. The real test of an estimator arrives when he starts computing the cost of unknown factors. For instance, wall-hung radiators may require fastening to brick, hollow tile, pyro bar, or wooden walls and partitions, and he must decide upon the proper securing device and calculate the time necessary for the installation. If hollow tile walls are to be encountered, it might be advisable to inquire of a mason contractor the approximate extra cost, if any, of using brick at all radiator locations, and if there would be any additional expense, it might offset the cost of fastening the hangers to tile. If ceiling-hung, several additional factors enter, such as, the weight of the radiator and the height it must be raised. Upon the type of floor construction depends the cost of installation of sleeves and pipe hangers, and, unless the specifications are very explicit on the latter point, it will pay to give it considerable thought. The placing of heavy equipment is usually let to a contractor specializing in that class of work, and it is only necessary to enter his quotation on the estimate sheet. In estimating the labor that will be required on a job, the experience gained from previous jobs will be a valuable aid, especially if the same workmen are available, but each job should be carefully considered in all its component parts. It does not seem sufficient to assume arbitrarily that it will require a certain number of hours to install a radiator unit, and use that figure as a standard for computing the labor cost of each job, irrespective of its size or type. Yet this method is in common practice, and apparently seems to work sufficiently well, on the average, to justify itself. It would appear that a more certain way of estimating labor is to break the job down into its component parts, make a list of them, and enter alongside each item the labor estimated for that particular part of the work.

USE DATA ON PREVIOUS JOBS

If it has been possible to gather data from jobs previously installed, then this information should be taken advantage of. For instance, if, when the job was figured, the estimated labor was listed for the various parts of the system, some attempt should be made during the progress of installation to roughly segregate the actual labor used, and keep it on record. This would resolve itself into a list something like that in Table I.

A few jobs kept track of in this way will enable the estimator to tackle the question of labor a little more intelligently and with more assurance. There is a certain class of work which is rigidly examined, during the pro-

cess of installation, by inspectors who are anxious to justify their existence to their superiors, and in doing so, make life miserable for the unfortunate contractor.

Table I

Work Item	Estimated labor	Actual labor	% plus or minus
Boiler (Give particulars).....			
Steam Mains (List sizes and lengths).....			
Roughing-in rad. connections (List no.)....			
Return Mains (List sizes and lengths).....			
Steam Risers (List total footage and no.)..			
Return Risers (List total footage and no.)..			
Other Equipment			

Their knowledge of the practices and materials pertaining to the heating and plumbing professions is usually nil, and their interpretations of the specifications are sometimes very funny to an uninterested party, but very much the opposite to the contractor concerned. An instance illustrating this was told to the writer, but it cannot be vouched for. However, the example is not too extreme. The heating specifications relating to a certain building called for all pipe in the basement to be covered with insulation. The mains were supported from the ceiling by threaded pipe which was screwed into the pipe hangers. The inspector insisted that these hanger rods be covered with insulation because they came under the clause mentioned above. There is no doubt but what the entire job was installed under the same exacting conditions, and it would be interesting to compare the labor and materials used against the estimated quantities. So it would appear that another qualification of a competent estimator is the foresight necessary to accurately determine what, if any, out-of-the-ordinary conditions will be likely to exist on any given job.

Accurate estimating is the bulwark of the contractor, protecting his peace of mind, and his pocketbook, from the inroads that forgotten items and random conjectures always make. And, if he can handle overhead, he is indeed fortunate.

Support Calnan on Health

Decreased Inspection Departments are Public Hazards

By Chas. M. Swinnerton

THE recent and most opportune declaration by John J. Calnan, president of the National Association of Master Plumbers, concerning the adequate protection of the health of the general public, by means of revised and adequate laws governing the installation of plumbing equipment and sanitary installations, marks him as a progressive, able and constructive leader. President Calnan consistently bases his deductions and recommendations on the fundamentals, the underlying and vital essentials on which our entire structure has been erected and without which it would collapse.

Idealistic theories or short-cuts for results do not enter into his consideration of this major problem. Rather, his is a clear, logical reasoning, based on experience and a thorough knowledge of the entire subject matter. The preservation of the health of the general public is first and foremost the prime consideration. To this end the prevention of such epidemics as the recent outbreak of amebic dysentery, which occurred recently in one of the largest cities in this country, is the objective.

How? As outlined so ably by President Calnan, by the passage of laws and ordinances governing the installation, alteration or repair of plumbing in those localities, where such safeguards do not at present prevail. That these laws be rigid, comprehensive and up-to-date. That they be rigidly enforced without favor or leniency. That the laws, ordinances and codes providing for the enforcement of provisions, governing the installation of plumbing equipment and fixtures, be carefully and adequately revised so as to be up-to-date so that they can be used to cope with new problems as they appear.

REVISION OF CODES NEEDED

Such revision should take place in those states, counties, localities and cities where such plumbing ordinances and laws are on the statute books and are thereby operative.

President Calnan's declaration is truly an admirable call to the leaders of our associations throughout these United States. It is a call from a sincere and able leader to the rank and file of our membership to take its share of the responsibility and cooperate to the end that this most vital element in our progressive work be promptly and effectively undertaken and accomplished.

Nothing is of greater importance to the future welfare and progress of our craft weighed in terms of our standing with the general public. No single movement will bring as great and substantial returns for the effort expended.

Unfortunately during this period of depression many elements have worked serious havoc with the strict enforcement of the provisions of the plumbing laws in many of our cities, towns and localities. Possibly the most severe has been created by the "paring down" of municipal, county and state budgets. This has resulted in a heavy curtailment and reduction in the funds allotted to operate the plumbing inspection departments. Lack of funds, in turn, has decreased the number of inspectors working in these departments, until today in many cases, the inspectors have little time to devote to any work outside of actual inspections of work executed under permits.

This condition has resulted in a great deal of work done without benefit of the required permit or inspection—"slipped in" by countless thousands of handymen, janitor-engineers and unqualified persons who have taken and are taking advantage of the situation. These various classes have, to a very large extent, supplanted the journeyman plumber in the repair, remodeling and upkeep of residences, apartment buildings, hotels and business buildings. In some localities the situation is becoming serious indeed, and journeyman plumbers are being rapidly forced out of employment.

HAZARDS TO PUBLIC HEALTH INCREASED

It has become almost impossible adequately to police the existing and operative plumbing laws and ordinances in many cities and localities, due to the heavy curtailment in the number of inspectors operating out of the plumbing departments. The hazard to the health of the general public has been proportionately increased. The plumbing department heads and the few inspectors under their supervision should not be unduly criticized. They are doing the best they can with the skeleton organization they are forced to work with. They are fully aware and acknowledge their inability to police the situation adequately. They would welcome assistance from the craft to assist in securing more rigid control. Due to all these conditions, the hazard to the health of the general public has been quite perceptibly increased.

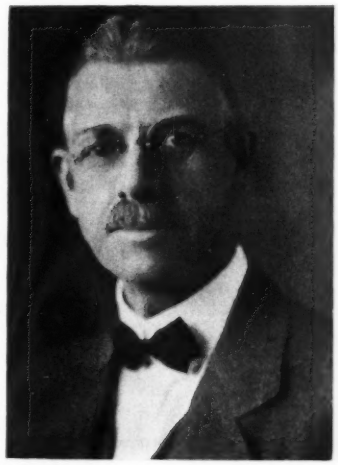
The duty and action of the master plumber is clear in this emergency. The master plumbers and their organization should get together and appeal to those in authority to increase the budgets so as to ensure adequate inspection of all work performed—insist that all provisions of the plumbing laws are rigidly enforced, particularly where it is provided that all who undertake such work must be duly qualified and examined before being permitted to operate—insist that handymen, janitors and all unqualified persons be restrained from interfering in any manner with the plumbing equipment in any building.

Instead of dispensing with the services of trained inspectors, these men could be most profitably employed in the protection of the health of the general public by a sustained and intensive drive to check work that has been "slipped in." It is more essential to the preservation of the health of the general public that inspection be made on work "slipped in," performed by unqualified persons, handymen, janitors and whatnot, without permits or benefit of the law, than that the operations and installations by regularly licensed and qualified plumbers be inspected.

Plumbing ordinances and laws are strictly health measures and as such should be given the same consideration that all health laws vital to the existence of human beings receive.

Interference with the sanitary system of the house or building by unqualified persons such as handymen, janitors or whatnot, constitutes a grave menace to the health of the occupants of such building, and the general public should be freely and fully advised of the very serious possibilities which exist.

The provisions of the laws governing the installation, alteration, replacing or repairing of plumbing in houses and buildings, are a necessary procedure and essential



Chas. M. Swinnerton

for the preservation and safeguarding of the health of the individual and the general public. We have abundant proof that such laws and provisions have been enacted to serve this purpose. We have abundant proof that the enforcement of these laws in the past has added very materially to conquest of disease, eradication of epidemics and prolongation of the span of life of the average human being. Since this is the case, is there any good reason why the bars should be let down, why strict enforcement of plumbing laws should be relaxed to the extent that handymen, janitors and other unqualified persons are rapidly usurping the trade and calling of our qualified journeyman plumbers, and thus increasing the unemployment problem in the journeyman ranks? An excuse freely given is that the unemployment situation is such that we cannot be too hard on this class of men —they have to make a living. True, indeed, they have to make a living, but what becomes of the qualified, experienced journeyman plumber whom they displace? What about his living? What consideration is he entitled to? As an experienced, qualified man he is the one who, by reason of his training, his qualifications, his experience, is best able and most capable of safeguarding the health of the public in such work—a most necessary and imperative precaution.

National President Calnan is right—head and shoulders over the crowd—he is right. We must immediately

and with determination, sincerity and reason, secure plumbing laws and ordinances in all sections of these United States, now without such safeguards. At the same time we must, with the same appreciation of our responsibility to the general public, apply ourselves and cooperate fully in a determined and sustained drive to bring the plumbing laws and ordinances now operative, up to the times—revise where necessary and bring them right up to date. At the same time a cooperative movement, looking to the rigid enforcement of existing plumbing laws should be immediately undertaken, to the end that the rapidly increasing legion of handymen, janitors and other unqualified persons performing work in direct conflict with the provisions of such laws and ordinances, be immediately restrained from so doing.

This is a matter that cannot be passively passed by or neglected. The volume of work performed by this class is increasing rapidly and, if allowed to proceed unchecked, will eventually spell ruin for many engaged in the plumbing business.

For fifty-two years as an organization we have labored to safeguard the health of the general public through the means of adequate regulation. The necessity is as vital today—yes, even more imperative today—than ever before. We are charged with and have undertaken a well defined responsibility. Let us continue to discharge that responsibility adequately with a full appreciation of the fact that the general public has placed its confidence and trust in our hands. They look to us for protection and added light on a most vital subject.

Why Water Should Be Treated

Conditions of water in New York State are comparable to those in other sections of the country

THERE are at least 262 local public water supplies in the State of New York whose physical properties could be improved by means of water-softening equipment, according to information made available by the Division of Sanitation, New York State Department of Health. The report goes on to state further:

It is generally known that "soft water" (rain or other water containing only small amounts of dissolved salts of calcium and magnesium) readily forms a lather while "hard" water (containing relatively large amounts of such salts) lathers only with difficulty. Few people, however, realize the full significance of hard water as it affects the household budget.

Hard waters destroy soap, making it necessary to use an excessive amount in order to obtain a lather. The insoluble soap curd formed sticks to garments, sides of washbowls and bathtubs, to the hair and to the skin. Clothes washed in hard water frequently are harsh to the touch, sometimes having a yellowish or grayish cast and a rancid odor caused by the curds adhering to them. The life of garments laundered in hard water is reported to be 20 to 40 per cent shorter than that of clothes washed in soft water. Washing soda, ammonia, lye and other similar chemicals moderate but do not eliminate the difficulty.

The housewife may not realize that the pinch of soda added to the water in which vegetables are cooked acts as a water-softener. Most large canneries prefer to use a soft water because of improved flavor, color and taste of the products.

Hard water precipitates scale in hot water heaters, boilers and like equipment, thereby reducing efficiency and causing high repair bills. This scale is also an insulating medium necessitating the use of a larger amount of fuel.

The hardness or "soap consuming power" of 649 water supplies in the State of New York for which such data are available are here indicated:

Parts per Million Hardness	No. of Supplies	Parts per Million Hardness	No. of Supplies
0-50	261	300-400	19
50-100	126	400-600	6
100-150	110	600-1000	5
150-200	58	1000-1800	2
200-300	62		

"Hardness" is a relative term, subject to different interpretations in various parts of the country.

In New York State, water with a hardness of 50 p.p.m. or less is considered "soft"; 50 to 100 as "moderately hard"; 100 to 150 as "hard" and above 150 as "very hard."

Experience has shown that it is profitable to undertake the softening of any water supply having a hardness of over 150 p.p.m. The possible saving on soap alone is material to saying nothing of the economies that may be affected in expenditures for plumbing repairs, fuel and clothing. It has been determined that 0.2 lb. of soap are needed to soften 1000 gallons of water for each part per million hardness. Thus, 1000 gallons of water having 300 p.p.m. hardness would require sixty pounds of soap to make a solution that would be effective as a cleansing agent. Assuming that soap costs 20 cents per pound and that water of 300 p.p.m. hardness were softened to 80 p.p.m. before use, each family of five using one gallon per person per day for washing purposes would save $16.06 on soap alone during the course of a year.

Code of Fair Competition for the Industry of Wholesaling

(Reproduced in Full)

Approval and acceptance of the wholesalers' code puts all branches of the industry under NRA regulations. The manufacturers' code was approved January 13, 1934, plumbing contractors' on May 15; heating contractors' on July 25; and the wholesalers' on October 25, becoming effective November 5

ARTICLE I. PURPOSE

To effectuate the policies of Title I of the National Industrial Recovery Act, the following provisions are established as a Code of Fair Competition for the Industry of Wholesaling Plumbing Products, Heating Products and/or Distributing Pipe, Fittings and Valves, and shall be the standard of fair competition for such Industry and shall be binding upon every member thereof.

ARTICLE II. DEFINITIONS

SECTION 1. The term "Industry of Wholesaling Plumbing Products, Heating Products and/or Distributing Pipe, Fittings and Valves" or "Industry," as used herein, includes the performance of wholesale functions, such as assembling, warehousing and buying from manufacturers the products defined in Sections 2 and 3 hereof, and the selling, transferring or distributing of such products, either directly or indirectly, to retailers, institutional, commercial and/or industrial users, or to retail divisions, branches or stores for resale and/or the selling and distributing of pipe, fittings and valves, as defined in Section 4 hereof, but not including sales of pipe, fittings and valves by manufacturers.

SECTION 2. The term "plumbing products," as used herein, includes bath tubs, lavatories, sinks, water closets, urinals, showers, drinking fountains, and all other plumbing fixtures with accessory and complementary products.

SECTION 3. The term "heating products," as used herein, includes heating boilers, radiators, with accessory and complementary products.

SECTION 4. The term "pipe, fittings and valves," as used herein, includes steel, wrought iron, copper, brass and other metal pipes with fittings and valves of like materials for the conveyance and control of water, steam, gas, air and other liquids, but does not include oil well tubular pipe.

SECTION 5. The term "member of the industry," as used herein, includes any individual, partnership, corporation, or other form of enterprise engaged in the Industry, either as an employer or on his or its own behalf.

SECTION 6. The term "employee," as used herein, includes any and all persons engaged in the industry, however, compensated, except a member of the industry.

SECTION 7. The terms "President," "act" and "administrator," as used herein, mean respectively the President of the United States, Title I of the National Industrial Recovery Act and the Administrator for Industrial Recovery.

SECTION 8. The term "joint national committee," as used herein, includes the thirty (30) representatives of the Associations presenting this Code and the individual members thereof or as such Committee may be augmented by the inclusion or representatives of other Associations and/or members of this Industry.

SECTION 9. The term "wholesaler," as used herein, includes any member of the industry who performs wholesale functions such as assembling, warehousing and buying from manufacturers, plumbing and/or heating products as defined in Article II, Sections 2 and 3, and who maintains at his or its place of business a stock of such products in such variety and volume as to meet the installation requirements, in conformity with the building codes and health regulations of the trading areas in which he or it operates and whose major sales are to plumbing and heating contractors or to institutional, commercial and industrial users.

SECTION 10. The term "jobber" and/or "distributor," as used herein, includes any member of the industry who buys pipe, fittings and valves from manufacturers thereof for resale and who maintains a stock of such products in sufficient quantity and variety to render normal service.

SECTION 11. The term "wholesaler-retailer," as used herein, includes any member of the industry who performs wholesale functions such as assembling, warehousing and buying from manufacturers of plumbing products and/or heating products, and who assigns or sells such products to retail divisions, branches or stores which thereafter make their major sales to the ultimate consumer.

SECTION 12. The term "plumbing contractor" or "master plumber," as used herein, is defined as: Any individual who has passed a satisfactory examination, where required by law, covering his technical training and experience in the engineering and manual aspects of his trade, has a license where required, in conformity with the requirements of the area in which he operates, or, in areas where no license is required, is capable of making a satisfactory installation under either the "United States Bureau of Standards, Recommended Minimum Requirements for Plumbing as Revised to May, 1931," or the "Plumbing Code" approved by the National Association of Master Plumbers of the United States, Inc., in convention June, 1933, or a firm, corporation or other entity organized for the purpose of selling and installing plumbing products, any member, officer, or regular employee of which is qualified as above provided.

SECTION 13. The term "heating contractor," as used herein, is defined as: Any individual, firm or corporation or other form of enterprise which conducts a business as such and who holds itself or himself out as qualified by training and experience to install heating, piping and/or air conditioning

equipment, either in connection with the sale of such equipment or independently thereof.

SECTION 14. The term "institutional, commercial and/or industrial users" of plumbing products, as used herein, is defined as: The United States Government and the agencies thereof, State Governments and their political subdivisions, railroads, shipbuilders, ship repair yards, and steamship companies or anyone who purchases plumbing products, on a wholesale quantity basis and who employs regularly on full time, a properly qualified master plumber, as defined in Section 12 of the Article.

SECTION 15. (a) The term "institutional commercial and/or industrial users" of heating products, as used herein, is defined as: The United States Government and the agencies thereof, State Governments, and their political subdivisions, railroads, shipbuilders, ship repair yards, and steamship companies or anyone who purchases heating products on a wholesale quantity basis.

(b) Other classes of purchasers of heating products may be so classified by the Code Authority, subject to approval by the administrator.

SECTION 16. The term "consumer," as used herein, is defined as one who purchases plumbing and/or heating products for its or his own use and not for the purpose of resale, except institutional, commercial and/or industrial users, as defined in Sections 14 and 15.

SECTION 17. The term "manufacturer," as used herein, includes anyone engaged in the manufacture of the products of the Industry.

ARTICLE III. HOURS

SECTION 1. No employee except as hereinafter provided, shall be permitted to work more than eight (8) hours in any one day or more than forty (40) hours in any one week.

SECTION 2. No watchman shall be permitted to work in excess of fifty-six (56) hours in any one week nor more than six (6) days in any one week.

SECTION 3. The provisions of this article shall not apply to persons in a managerial or executive capacity who regularly receive a salary or guaranteed minimum of $35.00 per week or more, or to outside salesmen.

SECTION 4. In case of necessity any employee may be permitted to work in excess of his maximum daily and/or weekly hours as specified in Section 1 of this article provided that one and one-third (1 1/3) times his normal rate per hour shall be paid for each hour worked in excess of said maximum daily and/or weekly hours. In no case, however, shall any employee be permitted to work more than eight (8) hours per week in excess of his maximum weekly hours as specified in Section 1 of this article, provided, however, that this exception shall be limited to not more than twelve (12) weeks in any year.

SECTION 5. Each employer shall, as far as practicable, so administer work in his charge as to provide the maximum continuity of employment for his personnel.

SECTION 6. No employer shall knowingly permit any employee to work for any time which, when added to the time spent at work for another employer or employers exceeds the maximum permitted herein.

SECTION 7. No employee shall be permitted to work more than six (6) days in any seven (7) day period.

ARTICLE IV. WAGES

SECTION 1. The minimum rates of pay per week of forty (40) hours shall be as follows in cities or the population listed below and their immediate trade areas:

(a) Over 500,000 population—not less than $15.00 per week.

(b) 250,000 to 500,000 population—not less than $14.50 per week.

(c) Less than 250,000 population—not less than $14.00 per week.

(d) In the South at the rate of $1.00 per week less than the rates specified above in Paragraphs (a), (b), and (c). Population for the purposes of this Code shall be determined by reference to the 1930 Census of the United States. The South shall include the states of Alabama, Arizona, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, Virginia, Texas, Tennessee and West Virginia.

SECTION 2. No part-time employee, and no employee paid on an hourly basis shall be paid less than 40c per hour. Any

W. J. Spillane who has been Chairman of the Wholesalers' Committee

emloyee who works less than the regular full time weekly hours of labor established by his employer shall be considered a part-time employee.

SECTION 3. (a) Employees with less than three (3) months' experience in the trade may be paid at the rate of $1.00 less than the minimum rates prescribed in Section 1 of this Article IV.

(b) Office boys, delivery boys and messengers between the ages of sixteen (16) and eighteen (18) years inclusive, may be paid at the rate of $2.00 less per week than the minimum rate prescribed, in Section 1 of this Article.

(c) Junior employees between the ages of sixteen (16) and eighteen (18) years, and not included in the categories specified in paragraph (b) of this Section 3, shall be governed by the provisions of paragraph (a) of this Section 3.

(d) The total number of learners and juniors employed as defined in paragraphs (a), (b), and (c) of this section shall not exceed in number more than 5% of the total number of employees of such employer, provided that each employer may employ at least one (1) learner or junior employee.

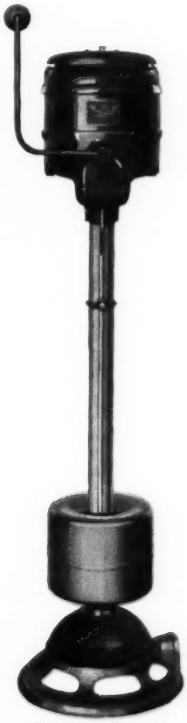
SECTION 4. The hourly rate or salary of all employees receiving more than the minimum rate or salary herein prescribed shall be equitably adjusted, if such adjustments have not already been made. No employee now receiving compensation at a rate in excess of the minimum herein prescribed shall have his weekly compensation reduced on

Constructed of COPPER AND BRONZE THROUGHOUT

PENBERTHY AUTOMATIC ELECTRIC SUMP PUMPS

Maximum Capacity 3600 Gals. per Hr.

Model K
Made in 5 Sizes
Retail Price
(Size No. 1 K)
$65.00



Maximum Capacity 1400 Gals. per Hr.

Model 33
Made in 1 Size only
Retail Price
$39.50

Their performance is as superior as the materials from which they are made. There is a Penberthy Pump for every purpose . . . and to suit every pocketbook.

PENBERTHY INJECTOR COMPANY
Manufacturers of Quality Products Since 1886
Detroit, Michigan **Windsor, Ontario**

PENBERTHY PRODUCTS

SELECT THE PUMP THAT SUITS THE PARTICULAR CONDITIONS . . . DON'T TRY TO SUIT THE CONDITIONS TO A PARTICULAR PUMP

NRA WE DO OUR PART

PENBERTHY AUTOMATIC CELLAR DRAINERS

(Water and Steam Operated)

MODEL S
Made in 1 Size Only
Maximum Capacity
600 gallons per hour
Retail Price . . $14.50

MODEL R
Made in 2 Sizes

	Max. Cap. gal. per hr.	Retail Price
1R	720	$25.00
2R	1240	40.00

MODEL L
Made in 3 Sizes

	Max. Cap. gal. per hr.	Retail Price
3L	1650	$ 55.00
4L	2400	80.00
5L	3200	110.00

All prices F. O. B. Detroit

PENBERTHY PUMPS REMOVE SEEPAGE WATER

MODERN PLUMBING COMPANY WINS LIFE-LONG CUSTOMER

JOHN! COME QUICKLY THAT PIPE IN THE KITCHEN IS LEAKING AGAIN - THE WATER'S ALL OVER THE PLACE!
WHAT! LEAKING AGAIN? WHAT FOOLS WE WERE TO BUY CHEAP PLUMBING
THIS IS AWFUL! WHO SHALL I CALL- THE SAME PLUMBER WE HAD BEFORE?
NO! CALL THAT PLUMBER WHO'S BEEN TELLING US WE OUGHTA HAVE BRASS AND COPPER - HE CERTAINLY KNEW WHAT HE WAS TALKING ABOUT
WELL, YOU CAN BET I'M SOLD ON BOTH YOU AND COPPER TUBE. AND BELIEVE ME, ANY OTHER PLUMBING AND HEATING JOBS WE HAVE ARE YOURS
GUESS YOU KNOW NOW WHY I TOLD YOU YOU'D BETTER PUT IN CHASE COPPER WATER TUBE. IT'S ALWAYS A GOOD NON-RUSTING, NO-LEAK JOB, AND IT'S KEPT MANY A CUSTOMER SOLD FOR ME
DID YOU NOTICE, I SPECIFIED CHASE BRASS AND COPPER THROUGHOUT IN YOUR NEW HOUSE?
YES-AND THAT'S JUST WHAT WE WANTED. AND WHEN YOU LET THE CONTRACT, GIVE IT TO THE MODERN PLUMBING COMPANY. THEY DESERVE THIS JOB FOR THE GOOD ADVICE THEY GAVE US BEFORE
SIX MONTHS LATER

CHASE

Good advice never lost a prospect but it's won many a life-long customer for master plumbers.

When you explain the many advantages of a Chase all-copper sweated job you're selling more than just labor and pipe.

You're selling absolute satisfaction to your customer—a leak-proof, rust-proof job that will never "let you down", never cost you a penny of service.

That's why thousands of business-headed plumbers lift themselves out of competition on a job by recommending Chase Copper Water Tube with Chase "tailored-to-fit" Sweat Fittings. They know a satisfied customer is a life-long customer—the best plumbing ad on earth.

CHASE COPPER TUBE AND SWEAT FITTINGS

CHASE BRASS & COPPER CO.

Incorporated

Subsidiary of Kennecott Copper Corporation

Waterbury **Connecticut**

account of any reduction in weekly hours of employment to conform to requirements of Article III.

SECTION 5. Each employer shall make payment of all wages due not otherwise than in lawful currency or by negotiable check therefor, payable on demand. These wages shall be exempt from any payments for pensions, insurance or sick benefits, or any other deductions by the employer, other than those voluntarily paid by the wage earner, or required by law. Wages shall be paid at least semi-monthly, and salaries shall be paid at least monthly. No employer shall accept any rebate directly or indirectly on such wages or salaries.

SECTION 6. A person whose earning capacity is limited because of age or physical or mental handicap may be employed in light work at a wage below the minimum established by this Code if the employer obtains from the State Authority designated by the United States Department of Labor a certificate authorizing his employment at such wages and for such hours as shall be stated in the certificate. Such authority shall be guided by the instructions of the United States Department of Labor in issuing certificates to such persons.

Each employer shall file monthly with the Code Authority a list of all such persons employed by him showing the wages paid to, and the maximum hours of work for such employee.

ARTICLE V. GENERAL LABOR PROVISIONS

SECTION 1. No person under sixteen (16) years of age shall be employed in the industry. No person under eighteen (18) years of age shall be employed at operations or occupations which are hazardous in nature or dangerous to health. The Code Authority shall submit to the Administrator within 30 days after the effective date of this Code a list of such operations or occupations. In any State an Employer shall have on file a certificate or permit duly issued by the authority in such State empowered to issue employment or age certificates or permits showing that the employee is one of the required age.

SECTION 2. (a) Employees shall have the right to organize and bargain collectively through representatives of their own choosing and shall be free from the interference, restraint or coercion of Employers of labor or their agents in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

(b) No employee and no one seeking employment shall be required, as a condition of employment, to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing.

(c) Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

SECTION 3. Every member of the industry shall comply with all rules and regulations relative to the posting of provisions of this Code which may from time to time be prescribed by the Administrator.

SECTION 4. Employers shall not reclassify employees or duties or occupations performed by employees or engage in any other subterfuge so as to defeat the purpose of the Act or the provisions of this Code.

SECTION 5. Every employer shall provide for the safety and health of his employees at the place and during the hours of their employment. Standards for safety and health shall be submitted by the Code Authority to the Administrator for approval within six (6) months after the effective date of this Code.

SECTION 6. No employee shall be dismissed or demoted by reason of making a complaint or giving evidence with respect to an alleged violation of this Code.

SECTION 7. No provisions in this Code shall supersede any law within any State which imposes more stringent requirements on employers as to age of employees, wages, hours of work, or as to safety, health, sanitary or general working conditions, or insurance, or fire protection, than are imposed by this Code.

SECTION 8. There may be established by the Administrator an industrial relations board for the industry consisting of an equal number of representatives of employers and employees to deal with all matters in the Code relating to labor. Where a majority agreement cannot be reached, the board shall elect an impartial chairman to render a decision. If no truly representative labor organization exists, the employee members of such board shall be chosen by the Labor Advisory Board of the National Recovery Administration. The employer representatives shall be chosen by the Code Authority. The Industrial Relations Board may establish such subsidiary agencies constituted in like manner as it finds necessary.

ARTICLE VI. ADMINISTRATION

Organization, Powers and Duties of the Code Authority

SECTION 1. A Code Authority is hereby constituted to administer this Code and shall consist of thirteen (13) members, which number may be enlarged or decreased with the approval of the Administrator, to be elected as hereinafter provided and in addition thereto there may be three (3) members, without vote, to be known as Administrative Members, to be appointed by the Administrator to serve for such terms as he may specify.

SECTION 2. (a) Until the election of the Code Authority, as hereinafter provided, there shall be a temporary Code Authority, consisting of ten (10) members, who shall be elected by the Joint National Committee within ten (10) days after the effective date of this Code and in addition thereto there may be appointed by the Administrator four (4) members who shall be members of the industry and who shall not be members of any association represented on the Joint National Committee, provided, however, that two (2) of such appointed members shall be wholesaler-retailers and one (1) shall be a jobber and/or distributor and one (1) shall be a wholesaler, and there may be appointed thereto the administrative members as provided for the Code Authority in Section 1.

(b) Within sixty (60) days after the effective date af this Code, the Code Authority shall be elected by the members of the industry at an election conducted pursuant to a plan to be submitted by the temporary Code Authority to the Administrator for his approval. The plan and the method of this election shall be submitted to the Administrator by the temporary Code Authority within thirty (30) days after the approval of this Code. Such plan shall provide for equitable representation of wholesalers, wholesaler-retailers, and jobbers and/or distributors.

SECTION 3. The Code Authority, subject to the approval of the Administrator, shall have power to divide and, if necessary, to subdivide, the United States into such zones, districts and/or local areas as, in its judgment, will best facilitate the administration of this Code and, further, shall have power to establish and appoint subordinate regional code committees for each zone, district or local area and to delegate to such subordinate regional code committees any of the powers, duties, and/or functions reposed in the Code Authority by this Code. Such Regional Code Committees shall render their minutes and reports of each of their activities to the Code Authority for its review and any action of a regional code committee shall be subject to the approval of the Code Authority. All records and minutes submitted by such regional code committee shall become a

. . . every Master Plumber should rea th

"Standard"

PLUMBING FIXTURES

•

cost no more than others

Today, you can buy genuine "Standard" Plumbing Fixtures at prices no higher than others. Adjustments and reductions in prices have been made *without* lowering our high standard of quality, material or workmanship. "Standard" quality remains the same—nothing has been lowered but the price.

These new low prices extend the fullest measure of cooperation to the Federal Housing Administration in its campaign to encourage remodeling and new construction. Now, more than ever before, "Standard" quality is within the reach of every home owner.

To assure the purchaser the full value and service from "Standard" Plumbing Fixtures, they are sold through Master Plumbers. This is a protection to the buyer because even the best plumbing fixtures cannot function properly unless they are installed skillfully in accordance with the laws and regulations set up for the safeguard of public health.

Through study, training and practical experience, Master Plumbers are the only ones qualified to install or supervise the proper installation of Plumbing Fixtures. It has been truly said, "The Plumber Protects the Health of the Nation."

Today—your Master Plumber is ready and prepared to serve you. He is familiar with the provisions of the National Housing Act. He can advise you about the steps in getting a loan for modernization or new construction. He can help you select the proper Plumbing Fixtures, Guide you in choosing colors that harmonize—designs that match. Consult him *first* on your plumbing problems.

Henry M. Reed.
President

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of American Radiator & Standard Sanitary Corporation

Above are reprinted the first two of a series of messages appearing in the leading newspapers of almost one hundred cities. These newspapers have a combined circulation of more than nine million copies each issue. The initial message was published during the week of Monday, October 22nd; the next during the week of Monday October 29th. It is planned to follow with others of similar character. Every Master Plumber should read them

these messages to the American Public

The Plumber protects the health of the Nation

DOWN the street . . . often away from shopping centers . . . sometimes almost obscured by the flashing fronts of other merchants . . . frequently, identified only by a modest sign, you'll find the guardian of health—your Master Plumber.

Without the Master Plumber there would be no modern civilization . . . no large thriving cities . . . no modern homes . . . no skyscrapers . . . for modern civilization depends upon modern sanitation. And, sanitation is the life-work of the Master Plumber.

His skill has brought the cleanliness, comfort and protection which have made American homes and American health the wonder of the rest of the world. His craftsmanship has made possible modern apartments, modern skyscrapers, modern homes.

Unheralded, sometimes unnoticed, the Master Plumber has done his work so well that the world actually has beaten a pathway to his door. His work is so important that states and cities have laws not only regulating the installation of plumbing, but setting a standard for the plumber himself. No other profession is more strictly regulated than the Master Plumbers. *And these laws to protect public health and insure the highest standard of professional skill have been passed largely through the insistence of the Master Plumbers themselves.*

So get acquainted with your Master Plumber! You will find him ready and eager to serve you. He will be glad to show you the most modern Plumbing Fixtures and help you select the designs most suitable to your purse and purpose. His practical knowledge, his long experience, his familiarity with local sanitary laws will be of inestimable value in assuring you the utmost service at the lowest cost. He will be glad to explain the National Housing Act—arrange convenient payments without red tape—without down payments. See your Master Plumber first for new Plumbing Fixtures.

Henry M. Reed.
President

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

part of the permanent records of the Code Authority. Each regional code committee may establish uniform credit terms, subject to the approval of the Code Authority and the Administrator.

SECTION 4. In order that the Code Authority shall at all times be truly representative of the industry and in other respects comply with the provisions of the Act, the Administrator may provide such hearings as he may deem proper: and thereafter, if he shall find that the Code Authority is not truly representative or does not in other respects comply with the provisions of the Act, may require an appropriate modification in the method of selection of the Code Authority.

SECTION 5. Nothing contained in this Code shall constitute the members of the Code Authority partners for any purpose. Nor shall any member of the Code Authority be liable in any manner to anyone for any act of any other member, officer, agent or employee of the Code Authority. Nor shall any member of the Code Authority, exercising reasonable diligence in the conduct of his duties hereunder, be liable to anyone for any action or omission to act under this Code, except for his own wilful malfeasance or nonfeasance.

SECTION 6. Subject to such rules and regulations as may be issued by the Administrator, the Code Authority shall have the following powers and duties in addition to those authorized by other provisions of this Code:

(a) To insure the execution of the provisions of this Code and to provide for the compliance of the industry with the provisions of the Act.

(b) To adopt by-laws and rules and regulations for its procedure.

(c) To obtain from members of the industry such information and reports as are required for the administration of the Code. In addition to information required to be submitted to the Code Authority, members of the industry subject to this Code shall furnish such statistical information as the Administrator may deem necessary for the purposes recited in Section 3 (a) of the Act to such Federal and State agencies as he may designate; provided that nothing in this Code shall relieve any member of the industry of any existing obligations to furnish reports to any Government agency. No individual report shall be disclosed to any other member of the industry or any other party except to such other Governmental agencies as may be directed by the Administrator. Nothing herein shall be construed to prohibit the publication of general summaries compiled from such reports.

(d) To use such trade associations and other agencies including the regional code committees as it deems proper for the carrying out of any of its activities provided for herein, provided that nothing herein shall relieve the Code Authority of its duties or responsibilities under this Code and that such trade associations and agencies shall at all times be subject to and comply with the provisions hereof.

(e) To make recommendations to the Administrator for the co-ordination of the administration of this Code with such other Codes, if any, as may be related to or affect members of the industry.

(f) It being found necessary to support the Administration of this Code and to maintain the standards of fair competition established hereunder, and to effectuate the policy of the Act, the Code Authority is authorized:

(1) To incur such reasonable obligations as are necessary and proper for the foregoing purposes and to meet such obligations out of funds which may be raised as hereinafter provided and which shall be held in trust for the purposes of the Code.

(2) To submit to the Administrator for his approval, subject to such notice and opportunity to be heard as he may deem necessary: (a) an itemized budget of its estimated expenses for the foregoing purposes, and (b) an equitable basis upon which the funds necessary to support such budget shall be contributed by members of the industry.

(3) After such budget and basis of contribution have been approved by the Administrator, to determine and obtain equitable contributions as above set forth by all members of the industry, and to that end, if necessary, to institute legal proceedings therefor in its own name.

(4) (a) Each member of the industry shall pay his or its equitable contribution to the expenses of the maintenance of the Code Authority, determined as hereinabove provided, and subject to rules and regulations pertaining thereto issued by the Administrator. Only members of the industry complying with the Code and contributing to the expenses of its administration as hereinabove provided (unless duly exempted from making such contribution), shall be entitled to participate in the selection of members of the Code Authority to receive the benefits of any of its voluntary activities or to make use of any emblem or insignia of the National Recovery Administration.

This code for the industry of Wholesaling Plumbing Products, Heating Products and for Distributing Pipe, Fittings, and Valves was originally approved by Hugh S. Johnson, Administrator for industrial recovery, on August 25, 1934. But the industry was surprised to find in it an exemption that might result in unfair competitive advantages, being given to members of the wholesale hardware trade and the code was refused by the Industry. The National Industrial Recovery Board, the successor to all powers vested in the Administrator for industrial recovery, under date of October 25, has, therefore, ordered that the above exemption be terminated pending its further order, and that the previous approval of this code of fair competition for the industry of wholesaling in this industry be modified only to terminate this exemption.

(4) (b) The Code Authority shall neither incur nor pay any obligation in excess of the amount thereof as estimated in its approved budget, except upon approval of the Administrator first obtained; and no subsequent budget shall contain any deficiency item for expenditures in excess of prior budget estimates except those which the Administrator shall have so approved.

(g) To recommend to the Administrator any action or measures deemed advisable, including further fair trade practice provisions to govern members of the industry in their relations with each other or with other industries, measures for industrial planning, and stabilization of employment; and including modifications of this Code which shall become effective as part thereof upon approval by the Administrator after such notice and hearing as he may specify.

(h) To appoint a trade practice committee which shall meet with the trade practice committees appointed under

(Concluded on Page 129)

NOW'S THE TIME *to install* MONEY-SAVING PIPE

Plumbing and Heating contractors can profit by economy in installation—the owner profits by long trouble-free service.

The contractor will save time and money for himself by working with NATIONAL Pipe. Threading, cutting, installing, tightening up, and final inspection are so quickly accomplished with this exceptionally well made, smoothly finished pipe that the immediate gain is very clear.

The property owner's interest will be served because of the extra tight, extra secure, extra durable job that results when NATIONAL Pipe is installed.

Reputation, good will, and a profitable business may be expected to grow up where such materials are combined with sound workmanship. Make NATIONAL Pipe your standby. Produced with unrivaled facilities by the largest manufacturer of wrought pipe in the world. Meets all standard specifications. Recognized everywhere as—

America's Standard Wrought Pipe
For Plumbing and Heating Purposes

NATIONAL TUBE COMPANY · PITTSBURGH, PA.
Subsidiary of United States Steel Corporation

Check these 10 outstanding advantages of NATIONAL PIPE

1. *Completely uniform.*
2. *Strong and ductile.*
3. *Threads easily.*
4. *Flanges readily.*
5. *Coils and bends well.*
6. *Sound joints.*
7. *Available in copper-steel.*
8. *Scale-free.*
9. *Spellerized.*
10. *Rigidly tested and inspected.*

NATIONAL PIPE

QUESTIONS AND ANSWERS!

1—

TO THE EDITOR:

In connection with a home which I am building for myself it is necessary to have one of the baths over the living room and I am very anxious to insulate the living room from noises caused by the operation of the fixtures and the water flowing in the pipes. Can you tell me what may be installed between the tile floor in the bath and the plaster ceiling in the living room to reduce the noise transmission? How should the piping be attached

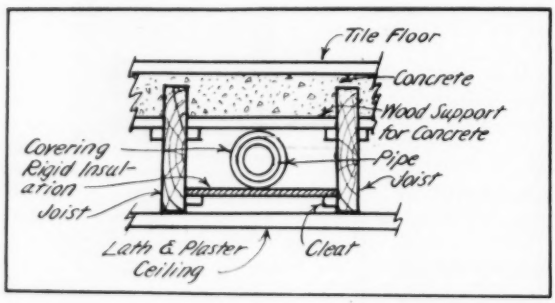


Fig. 1

and supported to prevent transmission of noise to the wood studs? How can the space around the pipes be insulated?

S. Carolina. G. C. W.

TO THE READER:

We do not believe that sound insulation to the extent that our reader evidently has in mind is necessary as bathrooms are frequently installed over occupied rooms without any serious annoyance when no sound proofing is used at all. Of course, we do not mean that such installations are absolutely soundless but we do mean that the noise usually is not sufficient to annoy anyone. To secure still greater protection all piping in the location in question may be covered with a double thickness of wool, or hair, felt treated against vermin; this includes hot and cold water, waste, soil and vent lines. Where pipes are supported from studs or floor joists a piece of lead about ⅛th inch thick may be attached to the wood first and the support for the pipe made of galvanized iron straps of about 18 gauge and *soldered* to the lead. Any screws from the support going through the lead will transmit into the wood and render the lead valueless.

Where the piping runs between studs the space may be packed with any loose insulation such as ground cork, mineral wool, or even sawdust. Where the lines run between joists the space under the line may have a thickness of asbestos board, wool felt, 1 in. corkboard or hair felt inserted with a small air space between the insulation and the lath and plaster ceiling so as to give the effect

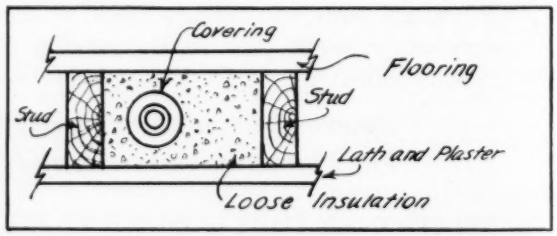


Fig. 2

of a double floor. None of these will cost very much money as they are only necessary under the bath and where the piping is over the living room ceiling. The schemes suggested are shown in Figs. 1 and 2. Where the piping runs down through the joists in the living

1. *Noise is the problem here. The answer points out that the probable seriousness is overestimated. Suggested ways to prevent noise are listed.*

2. *Reader is not taking any chances. A good practice to follow! He understands that difficulty has been encountered in some cases when boiler is on same level as radiation.*

3. *Here is a question involving piping facilities for a hotel and coffee shop. The answer anticipates the possible installation of showers and is worked out so that the piping will be adequate in either case.*

room wall we believe it would be a good idea to cover the soil line and water pipes these joist spaces also may be packed the same as suggested in the bathroom walls.

2—

To THE EDITOR:

Enclosed is a sketch—Fig. 3—of a hot water system with the boiler on the same level as some of the radiators as I understand difficulty has developed in some cases where this has been attempted and since I should like to get the best circulation possible, I would request

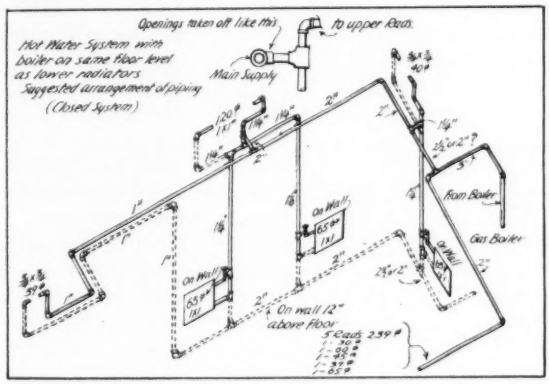


Fig. 3

that you look over the pipe sizes and piping arrangement. I will hold off the job for a short time until I hear from you about this.

New York. L. J. L.

To THE READER:

Our correspondent has a small residence one story high with most of the cellar used as garage space and with the boiler setting on the cellar floor back of the garage; the diagram he has submitted in Fig. 3 shows a portion of the system and the scheme of piping which he intends to use and we understand that the radiators, which he lists but does not indicate, will be connected up in a similar manner. On analyzing this layout, the first thought which strikes us is that there is very little head to circulate the water to even the first floor so that to carry hot water down to the basement radiators will be very difficult unless everything is done to facilitate the gravity circulation. The pipe sizes shown by our correspondent *may be used if a circulator is installed* to supply the motive power to move the water; this is without doubt the *safest* thing to do as the circulator will insure a circulation to all radiators.

If it is desired to stick to gravity circulation we believe that pipe sizes considerably larger than normal must be used owing to the lack of head which requires the cutting down of pipe friction to the lowest possible point. Also an effort should be made to prevent the water going to the first floor radiators in preference to those in the cellar. We think that taking an upstairs radiator and a cellar radiator off of the same common runout as shown by our correspondent in Fig. 3 should be avoided by all means. We also think that the connecting of the return from the radiator back into the supply line making a return out of it as indicated for the basement radiators will result in short circuiting these radiators and will accomplish no good in any other direction.

In Fig. 4 we have shown a re-arrangement of our correspondent's scheme with all of the first floor and basement radiators taken off of separate runouts; the supply and return sides of the system are entirely separated and the supply water cannot enter the return anywhere except by passing through the radiation. The main is pitched up from the boiler to the last first floor radiator served and the air is vented out of the main through this last radiator as noted. The branches to the first floor radiators are taken off of the bottom of the main at a 45 degree angle except on the last radiator where the connection is turned up to permit air venting from the main into the radiator. The branch on the other side of the building would be similarly treated. All branches to cellar radiators come off of the side of the main so as to assist circulation to these units.

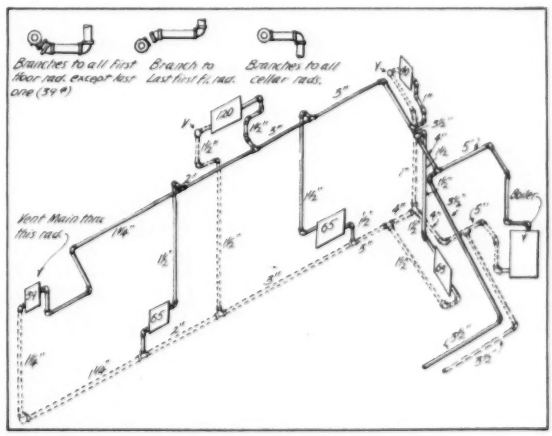

Branches to all first floor rad. except last one (34#)
Branch to last first fl. rad.
Branches to all cellar rads.
Vent Main thru this rad.
120
65
Boiler

Fig. 4

The pipe sizing has been made generous in most cases being based on the area of the radiator valves supplied plus one pipe size. It will be seen that this works out to a 5-in. main instead of a 3-in. main as proposed by our correspondent. We have no doubt but that a 3-in. main would be sufficient in a two story building with all of the radiators above the boiler but in the case under consideration the circulation is going to be none too good even with the increased sizes suggested.

Another thing which would improve the circulation and do much to prevent short circuiting would be to install piping on the reversed return plan where the main supply is carried out across the garage ceiling and splits in both directions with the return mains starting from the garage doors and going around both sides of the building where they meet and are run into the boiler room; with this scheme some way must be found to cross the door into the boiler room with the return from the left hand side. Another method of insuring

circulation in the cellar radiators is to connect them to the return from the nearest first floor radiator, making this return the supply for the cellar radiator. This has the advantage of assuring some positiveness of the circulation in the cellar radiators but has the obvious disadvantage of shutting off both the first floor and the cellar radiator on the same line when the stop valve of either radiator is closed. This is usually so objectionable that we have not attempted to make any layout of such a piping arrangement.

It is customary in cases where radiation must be installed on the same level with the boiler to increase the usual amount of radiation about 25 per cent to allow for the lower temperature of the water which accompanies this arrangement. With the use of a circulator this becomes unnecessary.

3—

To the Editor:

Will you let us know what size of storage tank you would consider necessary for the hot water supply in a hotel having 21 rooms with bath, coffee shop with kitchen, one public toilet room with two waterclosets, 1 lavatory and urinal? We also would like your opinion on the size of water main from the street to supply this job when the street pressure is approximately 50 lb. A prompt reply will be appreciated.

Iowa. P. and P.

To the Reader:

There will be considerable difference in the size of tank and the amount of hot water required if showers are installed in the 21 baths for the hotel rooms as against the amount required if these showers are omitted; as our correspondent does not state positively whether the baths include showers or not we will give him the probable hot water demand both with and without showers.

For a maximum possible usage without considering showers it will be assumed that each lavatory will run off 20 g.p.h. and each bath 40 g.p.h.; the average usage will be assumed as not over ⅓ of the maximum possible usage and the peak load as double the average load. This gives the average requirement for each lavatory as ⅓ of 20 g.p.h. and for each bathtub as ⅓ of 40 g.p.h. or 7 g.p.h. and 13 g.p.h., respectively. With 21 fixtures of each type the hot water demand will be likely to approximate

22 × 7 g.p.h. or 154 g.p.h. for lavatories
21 × 13 g.p.h. or 273 g.p.h. for bathtubs

427 g.p.h. total av. demand.

Doubling this for a peak demand in the morning gives

427 g.p.h. × 2 or 854 g.p.h. on the peak hour.

And allowing, say, three sinks in the coffee shop with a maximum usage of 30 g.p.h., an average demand of ⅓ of this or 10 g.p,h., and a peak load of double the average demand gives

3 sinks × ⅓ of 30 g.p.h. or 30 g.p.h. av. demand

while the peak will be double or

30 g.p.h. × 2 or 60 g.p.h.

Questions for Readers to Answer

The following question was asked in the September issue, and the following answer is by a reader:

An elevated tank has the bottom 20 feet above the fixture and is 6 feet diameter and 8 feet deep with a 7 ft. water line; if it is desired to increase the water pressure on the fixture would it be better to increase the height of the tank or to increase the diameter, assuming that the bottom remains on the same level in both cases?

I would say in answer to this question that it would be better to increase the height of the tank than it would to increase the diameter, because an increase in the diameter would only give the tank a greater capacity without raising the water level at all. The head on the fixture is what produces the pressure on the fixture and the capacity of the tank is only the volume which the fixture can draw upon.

Thus the present tank has the bottom 20 ft. above the fixture and has a 7 ft. water line, making the total head on the fixture when the tank is full of 27 ft. Now if the tank were increased in diameter the water line would still be 7 ft. above the bottom and the total head on the fixture would still be the same 27 ft. But if the height of the tank were increased, say, to 15 ft., with a 14 ft. water line, then the head on the fixture would be 20 ft. plus 14 ft., or 34 ft., which is 7 ft. better than before.

This may be proved by changing the head in feet to pounds per sq. in., by multiplying by 0.43, since every foot of height gives 0.43 lb. per sq. in pressure. Then in the first case we would have

27 ft. × 0.43 or 11.6 lb.

while in the second case we would have

34 ft. × 0.43 or 14.6 lb.

Should the water in the tank be drawn down to a point near the bottom, the pressure in both instances would be the same, since the feet of head also would be the same; thus if the water were down to within one foot of the bottom, say, then the head on the fixture in both cases would be 20 ft. plus 1 ft. or 21 ft., and the pressure would be

21 × 0.43 or 9 plus lb.

In other words, the pressure is due to the height of the water. Increasing the diameter merely increases the capacity.

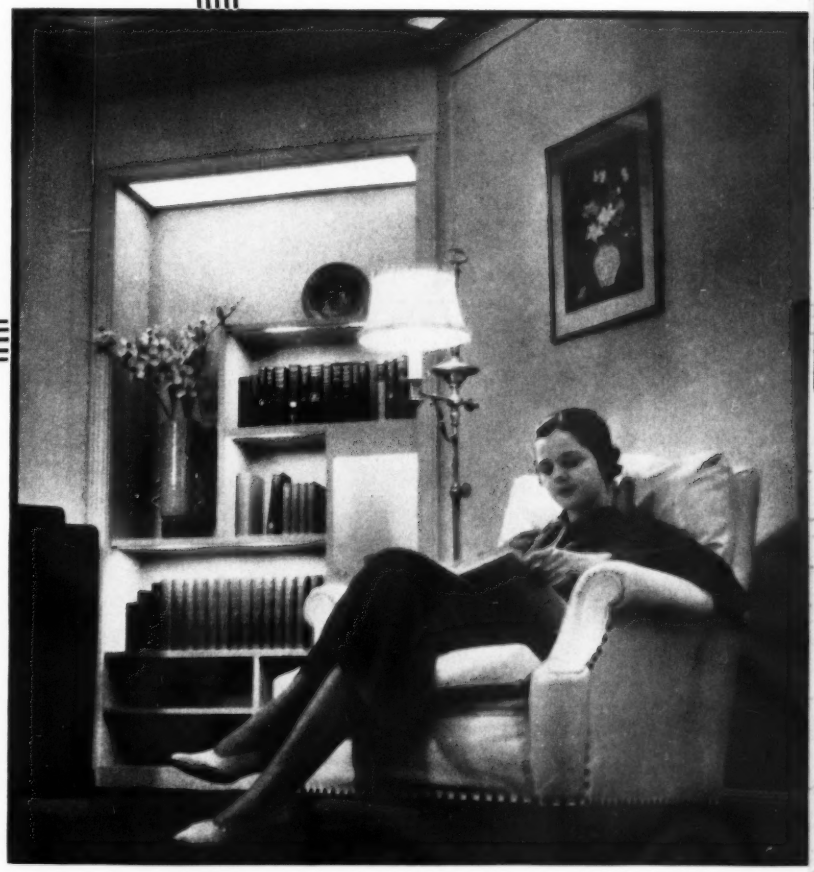
How Would You Answer This Question?

What percentage of increase in heat emission is obtained by raising the steam pressure in a steam radiator from 1 lb. to 5 lb.?

Answers based upon your experience, suitable, will be paid for and published in the January issue.

Automatic Heat *and* Air Conditioning

In this Issue, The Battle of the Fuels ....“The gas campaign has created a preference for automatic heat upon which oil burner merchandisers have been able to capitalize very nicely”



Sell Comfort — and Automatic Heat and Air Conditioning Sales will take care of themselves

There is a WATTS SYSTEM for EVERY Hot Water Heating Installation

Manufactured by a concern that has specialized in Water and Steam Regulating Devices since 1874

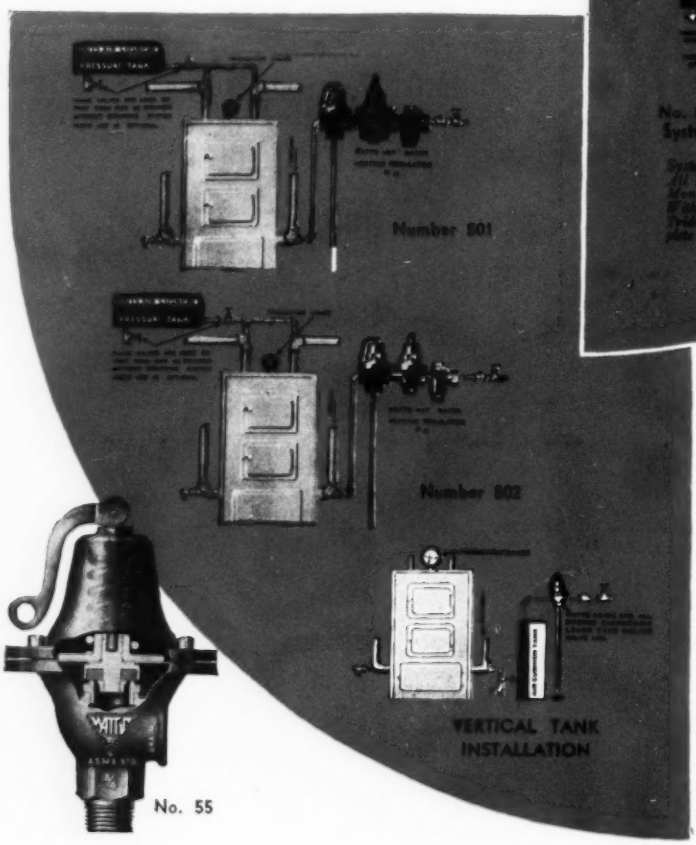
Watts has been through all the bugaboos of varying water conditions, disc and diaphragm fatigue, spring distortion, etc., for more than 60 years.

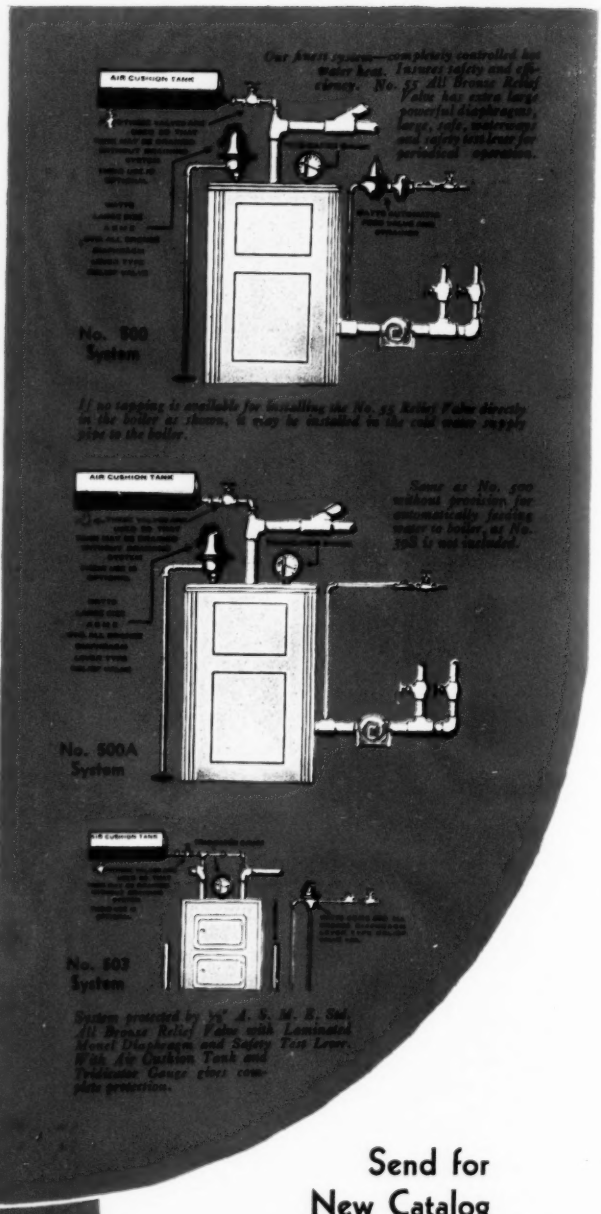
Isn't it reasonable to suppose that a concern which has specialized that long in the manufacture of precision instruments must have the experience and knowledge to enable them to manufacture products that will stand up and give satisfaction? No concern can stay in business 60 years unless it makes reliable products.

You can be absolutely sure that you will have no comebacks or kicks if you install Watts products.

JOHN G. KELLY, Inc., *Distributors*
210 East 45th St., New York, N. Y.

WATTS REGULATOR CO. LAWRENCE MASS.





Send for New Catalog

The new Watts Catalog and Price List illustrates and describes Hot Water Regulators, Regulator Systems, Pressure Tanks, Damper Regulators, Gauges, Relief Valves, Feed Valves, Feeders, Cut-Offs, Circulators, Pressure Regulators, etc.

Write for your copy and discounts today, or mail the coupon.

John G. Kelly, Inc.,
210 East 45th St., New York, N. Y.

Without obligation you may send a copy of the new Watts Catalog and Price List.

Name .....

Address .....

City ..... State .....

Here are representative ads which appear in present campaign

Battle of The Fuels

By P. H. Erbes, Jr.

This article republished from a recent issue of Printers Ink magazine indicates an outside viewpoint

A BATTLE of testimonials which seems to involve an all-time high in knocking copy has broken out along the Chicago front in recent weeks. It is a new engagement, an adding, as it were, of fuel to the fire of bitterly competitive advertising warfare which the gas and coal interests of that city have been waging, with one brief armistice, for over a year.

Here is how a couple of typical current skirmishes look to the householder in the No Man's Land between the barrages of the combatants:

He opens his newspaper and comes to a large advertisement of the Peoples Gas Light & Coke Co. It involves the sentiments of one, E. A. Weise, who states: "Naturally Gas heat means a lot to me. . . ." Mr. Weise is a piano tuner and goes on to assert that he can work pleasantly at his craft in his basement because there is "no soot, no dirt, no dust . . . no shoveling and hauling of ashes."

Then in the same issue there is an advertisement of the Chicago Coal Merchants Association which embodies, it seems to this war correspondent crouched in a strategic shellhole (who is this guy Floyd Gibbons?), an entirely new weapon of advertising combat—the reverse testimonial. The term is arbitrary—perhaps "nontestimonial" would be a good name. It designates a testimonial quotation of a consumer letter which proclaims, not eulogy of the advertiser's own product, but contempt of the competing one. Thus:

"I had gas heat installed and we spent a miserable winter," Mrs. A. Underwood is quoted in the Coal Merchants' copy. Gas heat, according to this lady, is too expensive and, with coal heat, *her* basement is always warm and comfortable.

Last week brought these two rounds of fire from the respective front lines:

"Gas Heat has been a money-saver all the way around," reports Dante R. Barone in a gas advertisement. There's no dirt and dust to seep into rugs, soil drapes, smudge walls and woodwork, he adds.

"Gas costs twice as much as coke," retorts Emil Marousek in a coal advertisement of the same date. He cites figures to prove it. And *he* says there is no dust or dirt with coke.

PART OF A LONG MUD-SLINGING STRUGGLE

These latest volleys represent refinement in technique of the fuel warfare, but in the broader sense they are merely incidents in a protracted mud-slinging struggle. Seemingly no bitter, derogatory word has been spared. Spade after spade has been designated by the forthright noun for that implement. In fact, the gas people have indicated that a coal shovel is a damned nuisance. And a gas heating plant has been called an extravagant folly.

The whole sorry affair is perhaps the best example to date of the unreasoning lengths of retaliatory vituperation to which a knocking policy, like the proverbial snowball, inevitably proceeds. Hence it should be both interesting and instructive to trace the history of the feud and examine the consequences of it.

Early last summer a co-operative advertising campaign on the advantages of gas heat was initiated by the Peo-

(Continued on Page 86)

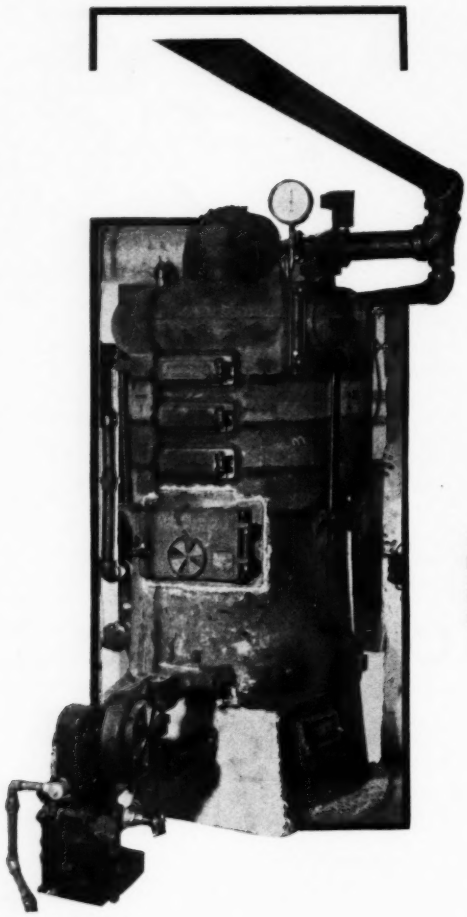


Fig. 1 — The heating plant before the covering was placed on the boiler. The water line is indicated by the gauge glass

Shooting Trouble on a New Oil Job

Contractor-dealer finds success of oil job rests on operation of entire system

WHEN we learn by experience we learn from a most expensive teacher. If we can learn through the experiences of others it is almost as satisfactory and much more economical. That is why books are written, why research work is carried out and why troubles are investigated. In this article a most interesting case is cited where an automatically fired one-pipe steam system suffers from loss of water from the boiler with no self-evident reason apparent. The large number of such systems installed, and being installed, throughout the country make this of importance to every contractor-dealer and designer engaged in this branch of heating work. It illustrates again the close relation between the heating system and the automatic equipment by which it is fired.

A few days ago a contractor-dealer came to us and told of the difficulties he was having with one of his jobs. We made a personal visit to the job and found that he had made a good installation, the piping was excellently fitted and installed, the mains were pitched and the sizes seemed ample. The system was found to be operated by an oil burner of the high and low type and that whenever the burner changed to the low rate, the water would disappear from the gauge glass and everyone would get worried. Even the use of the Underwriters loop did not seem to prevent the difficulty. The question put to us

was what should cause this trouble when it would appear that everything is in good order.

A general view of the pipe system is shown in Fig. 3. It will be seen that the main is run in two loops starting off from the boiler as 3½ in., and splitting into two 2 in. lines which are looped around and brought back to a point near the boiler where they are equipped with vent valves and drop down with 1¼ in. pipe under the water line after which they unite and pass through the Underwriters loop before entering the boiler return tapping. Each of the steam loops has about a 5 in. pitch from the high point at the boiler around to the point where the drip is taken off at the low end of the main; the water line in the boiler is 59 in. above the floor and the invert of the Underwriters loop is 4½ in. below the water line which brings the bottom on a level with the bottom fitting of the gauge glass. This makes the invert of the loop lower than the visible portion of the water glass. The boiler is a 25 in. round boiler of six sections. The distance between the normal water line in the boiler and the low end of the steam main is about 14 in., and while this is rather close working, it is not by any means a distance in which trouble should develop if the system is properly designed.

PUZZLING WHEN BURNER LOWERS

This is a new system and, while it is the ultimate intention to use vacuum air valves—that is air valves with a check to prevent the entrance of air and to permit the system to run under a partial vacuum at times—for the present only ordinary air valves are in use. The idea is to install the permanent valves after all difficulties have been rectified and after the system has been cleaned out thoroughly. Now here comes the puzzling fact; it seems that when the burner is running on high and developing a good fire everything is satisfactory, but when the burner goes onto low the water promptly walks out of the gauge glass and stays out until the burner is put back again on high when the water reappears and everything goes back to normal.

In Fig. 1 is shown a photograph of the front of the boiler which indicates that the rise from the boiler to the steam main is very much reduced in height but the effective manner in which this is dripped through the balancing pipe to the top of the loop makes it seem that there should be no particular cause of trouble at this point. On the other hand, the arrangement of the return in the rear of the boiler as indicated in the sketch, Fig. 4, shows that this drip or balance pipe is 2 in. in size and is carried into the boiler return tapping without a reduction at any point. The wet returns consisting of two 1¼ in. lines are connected into a single 1¼ in. line which in turn forms the inlet side of the loop. The top of the loop is connected into the 2 in. balancing pipe from the steam main to the boiler return. A view of these connections as they actually appear on the job is shown in Fig. 2.

Now, although this is an excellent piping job in general, there are some things which could be improved, among these being the method of taking off the steam from the boiler to the steam main as shown in the detail, Fig. 5. It will be seen that the runout is connected to the boiler tapping through almost a close nipple which we believe could have been made more satisfactory as shown in Fig. 6. Another thing is that the use of eccentric reducers at the ends of the steam mains as shown in Fig. 7, is not as good practice as the carrying of the main down full size under the boiler water line and then reducing below the water line. Also, we believe the air valves at the ends of the mains would act better if set up on a piece of ¾ in. pipe about 12 in. above the main level. But all of these things, while desirable, are not, perhaps, absolutely essential and there seems to be nothing in any of them to account for water backing out of the boiler.

Moreover, we are not of the opinion that the water does back out of the boiler to any extent. It is quite possible that the oil burner under maximum operation emulsifies the water in the boiler to a considerable extent and so produces during these periods an artificially high water line. As soon as it drops to the low rate this emulsification ceases and the water line falls back to its true level. Another thing, it is a new system. The temporary air valves are installed until the system gets cleaned out and probably there is a certain amount of oil accumulated, and accumulating, in the boiler. When a boiler has oil in it, peculiar results may be accomplished which are hard to explain because the vaporizing of the water is interfered with, and affected by, the oil.

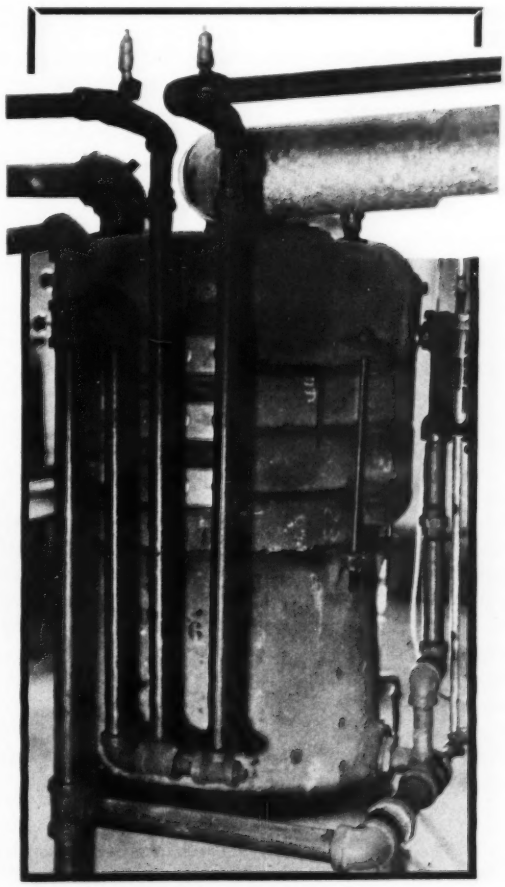


Fig. 2—Rear view of the boiler in question. Note the Hartford loop; also note the lack of elevation for the air vents on the return lines

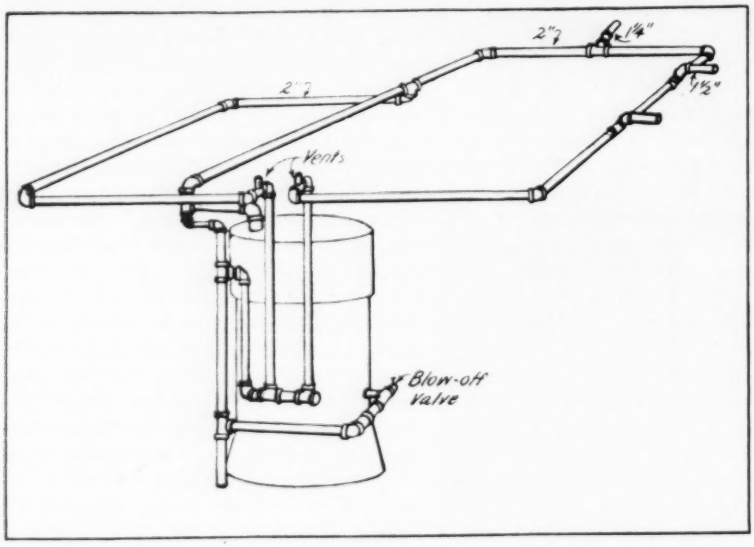


Fig. 3—A general view of the piping system is shown here. The main is run in two loops which are joined below the water level before entering the boiler through a Hartford loop

One of the suggestions made is that the system is condensing steam more rapidly than it is formed when the burner goes onto the low rate, thus producing a greater vacuum out in the system than exists in the boiler. This might possibly be true for a short time but with ordinary air valves installed this vacuum would soon be relieved by the admission of air as soon as the valves open. Any vacuum in the system could not be of any long duration. Besides this, it must be assumed that the vacuum is sufficient to lift the boiler water up and to fill the low end of the steam main. With a difference of 14 in. in the level between the low end of the steam main and the boiler water line, about 1½ in. of vacuum would be able to lift the water this height but to have this difference in pressure between the water in the boiler and the water at the top of the loop it must be assumed that the pressure drop in passing through the main also is 1½ in., or nearly ¾ of a pound which seem unreasonable with the size of main used.

We would be inclined to blame the whole affair on a new system with a dirty boiler were it not for the fact that the contractor-dealer has a similar condition in the system in his own shop. On this system there is neither a loop nor a check valve in the return and it is operating with automatic check air valves throughout.

Owing to the fact that in comparing the two systems both of which have the same complaint we have conditions *with* and *without* the loop and *with* and *without* automatic air valves with checks, it seems reasonable to suppose that neither of these items is the real cause of the trouble, other things remaining unchanged. It would appear that the vacuum induced in the system by the sudden turning off, or the lowering, of the steam produced had some real bearing on the matter and that the more this is intensified the greater is the resulting difficulty.

If this is the answer, there is no question but that a *greater difference* in level between the low end of the steam main and the boiler water line would make it more unlikely for such a contingency to occur and it will be noted that the distance of 14 in. is at least 4 in. less than the figure of 18 in. usually recommended. One of the reasons for this lesser distance was the necessity of dropping the steam main under a beam, but this could have been overcome by looping around the beam in the manner shown in Fig. 8, where the steam travels through the top portion of the loop and the condensate uses the bottom portion. Had that been done (and the main raised accordingly), the water line difficulty might never have developed. Certainly the water does not go out of the boiler below the invert of the loop in the case where the loop is installed. If this loop were made in accordance with the arrangement shown in Fig. 9 it might be possible to raise the invert of the loop up to the normal water line level and still not have any serious noise develop.

In order to locate the trouble we suggest that first the system be filled to the normal water line level, after being cleaned out thoroughly with some good boiler compound. A marker should be placed on the gauge glass at the water line. Then, accurate pressure gauges—or at least pressure gauges which check with each other—should be placed, one on the boiler and one on the return line where it drops down under the water line or close to the end of the steam main. With this ready the boiler should be started and run up to the high rate of the burner and the difference between the readings of the two gauges noted so that the drop in pressure in the system may be ascer-

(Continued on Page 109)

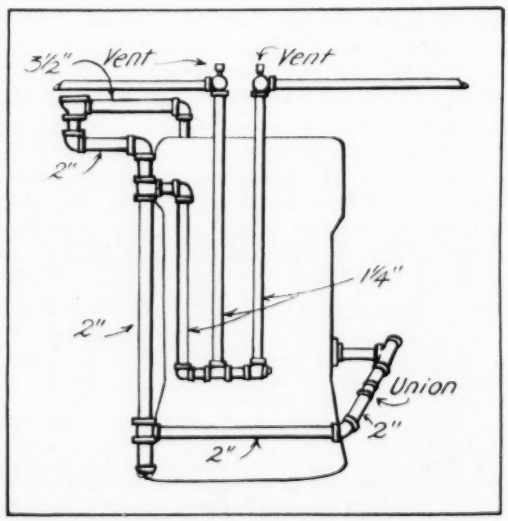


Fig. 4—The arrangement of the return shows that the drip or balance pipe is carried into the boiler return tapping without a reduction at any point

How to Compare Cost of Heat by Degree Days

The gas industry formed the basis of method now used as the most reasonable yet produced

By Arthur Branch

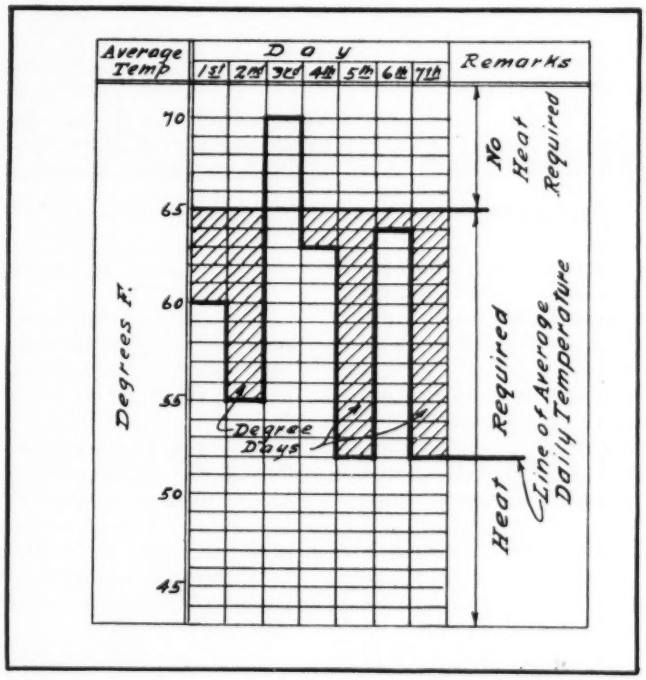


Fig. 1—Portions of chart above the 65 deg. Fahr. line represent days when no heating is needed. Portions below show heat load during other days

THE comparison of the performance of heating systems in order to ascertain the relative economies, and the comparison of two methods of operation on the same heating system for the same purpose, is beset with difficulties not all of which can be smoothed away by any means so far developed. One winter may be a colder winter than another, and a comparison of the fuel consumption during the mild winter cannot be made with the colder winter and get any equitable results. Everyone agrees that some allowance should be made for the colder winter but the amount of such allowance is a very debatable point.

Also, often it is desirable to attempt to estimate the winter's fuel requirements on a new system based on the fuel used the first month or two and this involves a requirement of knowing what the proportional heat demand is for each month of the heating season and what the proportional heat demand is, for the particular month of the particular year that the amount of fuel burned (or the amount of steam used) for heating during the month in which the test run was made.

When gas heating first began to assume prominence, the gas industry made some tests and arrived at conclusions from which the degree day method of comparison has been built up; this method now has been adopted by the entire heating industry as being the fairest and most reasonable procedure so far produced for this particular purpose. Like all other things, it is not perfect and does not allow for every contingency affecting the heating demand; still it does take into consideration the temperature difference in a very logical way and in a manner superior to anything available at the present writing.

The degree day method is based on the fact that artificial heat seldom is required, or used, when the average temperature for the entire day is 65 deg. Fahr. or over. The reason for this, of course, is that when the average temperature for an entire day is 65 deg. Fahr., the temperature during the daytime usually is 70 deg. Fahr. or

over, and it only is at night that the temperature outside falls to 60 deg. Fahr. or less, so that the heat accumulated in the building during the day is sufficient to keep the interior from becoming uncomfortably cold even during the night. When the average daily temperature is below 65 deg. Fahr. the temperature during the daytime most often is low enough to make the use of artificial heat desirable.

A careful calculation based on government reports then is made of the number of days in the heating season for each month when the average temperature is below 65 deg. Fahr. and the number of degrees that each such day is below this limit where no artificial heat is required. In the case where the average temperature for a day is, say, 50 deg. Fahr., then that day is

65 deg. Fahr. minus 50 deg. Fahr. or 15 degrees below the limit

and the day is said to represent 15 degree days. On another day when the temperature is down to 10 deg. Fahr. the day is said to represent 65 deg. Fahr. minus 10 deg. Fahr. or 55 degree days.

Calculating this for each day of each month gives, as a total, the number of degree days in that month and, adding all of the degree days for the months during the heating season, gives the total degree days for the season or year. Now if the average daily temperature for a given day is taken from an average temperature of that day for a large number of consecutive years, and if the same practice is carried out for each day throughout the season, then the degree days secured represent the average degree days for that particular period over a long stretch of time and so constitute a basis against which all individual months, or seasons may be compared. The longer the time over which the daily temperature is averaged, the more correct will be the degree days obtained from the standpoint of the average condition of temperature difference.

From the foregoing it is evident that the definition of a degree day may be stated as one day in which the average temperature for the day is 1 deg. Fahr. below 65 deg. Fahr. Also that the number of degree days for a given period is the sum of all of the days in that period after each has been multiplied by the number of degrees that the average temperature for each day is below 65 deg. Fahr. Thus with a week in which the average daily temperatures were

1st day.....60 deg. Fahr.
2nd day.....55 deg. Fahr.
3rd day.....70 deg. Fahr.
4th day.....63 deg. Fahr.
5th day.....52 deg. Fahr.
6th day.....64 deg. Fahr.
7th day.....52 deg. Fahr.

the degree days are represented by

1st day, 65 deg. Fahr. — 60 deg. Fahr... 5 degree days
2nd day, 65 deg. Fahr. — 55 deg. Fahr...10
3rd day, 65 deg. Fahr. — 70 deg. Fahr...none
4th day, 65 deg. Fahr. — 63 deg. Fahr... 2
5th day, 65 deg. Fahr. — 52 deg. Fahr...13
6th day, 65 deg. Fahr. — 64 deg. Fahr... 1
7th day, 65 deg. Fahr. — 52 deg. Fahr...13

and the total for the week will be.....44 degree days. This is graphically illustrated in the chart given in Fig. 1.

This calculation could be carried on for the whole month to obtain the degree days for the month, or for the whole season to obtain the degree days for that season or year. It is not well to try to make a comparison in degree days for so short a period as a week as the weather varies materially all through the year, there being warm weeks (comparatively) and cold weeks (comparatively) but when the comparison is extended for the period of a month a much more average condition on the outside is obtained.

Now, granting that all of this is so, how may it be applied to practical use? There really are two distinct uses for degree days; one is in making a comparison of probable fuel or steam requirements in different localities and the other is in making estimates or comparisons of savings on the same building and plant in the same locality.

For example, suppose a certain house, or building, had 500 sq. ft. of steam radiation and is located in a territory where the average number of degree days per season amount to, say, 5,000; what would be likely to be the relative percentage of fuel burned or steam used for a similar house with the same size of heating system located in a place where the degree days per annum amount to only 3,000?

HERE IS ANSWER TO PROBLEM

The answer to this is 3,000/5,000 or 0.60, which is 60 per cent. Suppose that the house in the warmer section had, instead of 500 sq. ft. of steam radiation, about 700 sq. ft. What would be the relative fuel requirement then?

Here it will be assumed first that the house with the 700 sq. ft. is in the same locality as the house with 500 sq. ft.; in this case the 700 sq. ft. house would require

700 / 500 or 1.40 which is 140 per cent

of the fuel used in the 500 sq. ft. house but as the 700 sq. ft. house is located in a place where the degree days are only 3,000 instead of 5,000 the fuel used under this condition would be

140 per cent × 3,000 / 5,000 or 84 per cent

It is not necessary in the above that both houses should be similarly constructed, or arranged, but it *is* necessary to assume that both are properly radiatored, or that the radiator surface in each case is proportional to the heat losses from the house being neither excessive nor inadequate.

Now for the second application; a man is considering the installation of a certain type of temperature control and the contractor-dealer guarantees him a saving of 20 per cent if the temperature control is installed. How are they to arrive at the percentage which the control actually saves? This is a very important question, as the contractor's payment sometimes is contingent on his performance as guaranteed. The purchaser probably has no accurate account of fuel used outside of knowing the approximate amount purchased per annum but is willing for the contractor to weigh out an amount more than sufficient to run for a month and to weigh back the balance. Then the control is installed and the same procedure followed for the subsequent month.

For the sake of even figures and to illustrate the prin-

(Continued on Page 113)

Fig. 1—Two booths were used. This one contained the oil burner, plumbing and gas range display. The other showed gas

County Fair Display Sells Burners and Gets Prospects

Novel method of conducting exhibit includes advertisement for bidders at auction

Wanted—250 Men and Women to bid on the Chambers Fireless gas ranges and Pyrofax equipment and Williams Oil-O-Matic oil burner, now on display in the booth of Blank & Bachmann, Inc., at Floral Hall. For further information see person in charge of display. A chance to buy a Chambers Fireless gas range at $50; Pyrofax equipment installed at $65; oil burner at $295, installed complete, ready for use. *24-2

The success of this venture was measured in terms of actual sales and new prospects

IF the success of a project is measured in terms of actual accomplishments, the recent activities of Blank and Bachmann, Inc., at the La Porte County Fair may be considered successful. This plumbing and heating concern, dealers in oil burners, coal stokers, gas ranges and gas equipment of the metal container type, set up two booths recently at the LaPorte, Indiana, County Fair. In one booth they displayed oil burners, fireless gas ranges and plumbing fixtures. A photograph of this set-up is shown in Fig. 1. In the other booth they displayed gas equipment of the type for utilizing gas distributed in metal containers and ranges for burning this gas.

From an advertising standpoint, Mr. Bachmann pointed out that 35,000 people paid admissions to this fair and that they received good publicity as a result of their efforts.

Probably the one thing which made this firm stand out in this exhibit was the way in which they carried on a campaign to get prospects. The classified ad reproduced at the left was run by them in the local newspaper and, as indicated, they made it of the want-ad type and called for 250 men and women to bid on the

(Continued on Page 104)

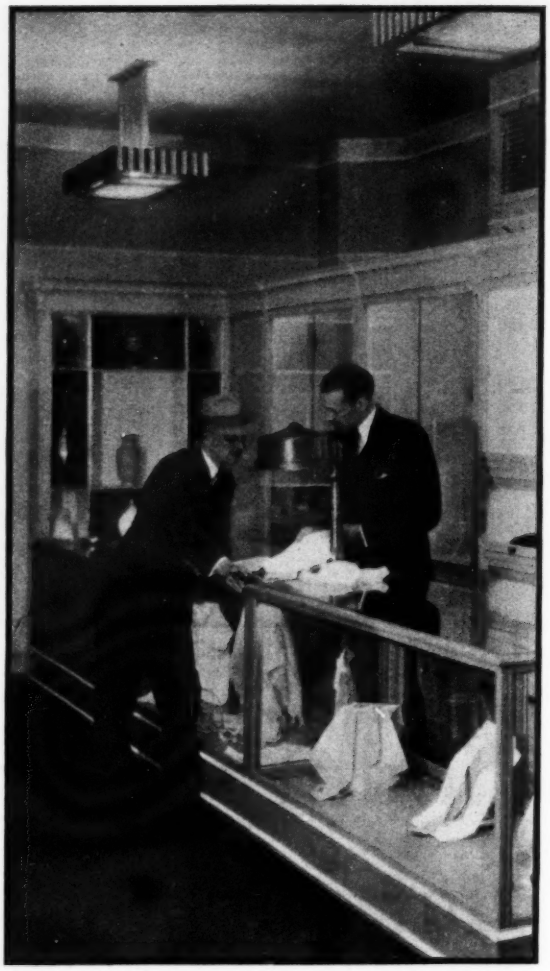


Fig. 1—The problem is that it is desired to install a cooling system in a large merchandise shop, taking into consideration that the ventilation system is in service

How to Figure Demands For

IN air conditioning work, the function of the air washer should be thoroughly understood and appreciated. While its construction is not complicated and the spraying of water into an air current is simplicity itself, the results and effects on the air are somewhat more involved. It may be most easily defined as an enlarged section of the air duct in which water is sprayed into the air stream and all of the other features are simply to facilitate this spraying. Nozzles must be provided to atomize the water, pipes must be run to the nozzles, the spray water must be collected into a receiver and entrained water must be removed from the air after it has passed through the washer.

The air washer is termed a *humidifier* when it is operating so as to add moisture to the air and as a *dehumidifier* when moisture is being removed from the air. As most air washers are used for this dual purpose, depending on the outside weather conditions and the air condition desired within the building, they will be simply termed air washers in this discussion.

GENERAL CONSTRUCTION OF WASHER

An enclosure of sheet metal is used to confine the air flowing through the washer and to prevent the loss of spray water to the surrounding atmosphere or objects. This *casing* as it is designated, is stiffened with metal angles. The casing covers the top and two sides of the washer only, the entrance and exit being open for the incoming and outgoing air flow; the bottom is formed by the drip pan which acts as a receiver for the falling spray and any water precipitated from the air. Usually this pan is of the same construction as the washer but occasionally concrete pans are used. The pan or tank most frequently is 16 in., deep and has an overflow sufficiently high to maintain a water line in the tank so that the circulation pump suction pipe is submerged. In this plan is placed a ball cock supplied through a ½ in., or ¾ in., water pipe the function of this ball cock being to keep the pan water line from being lowered when the washer is humidifying. Above the pan and across the casing are cast iron or brass headers supplying vertical branch pipes in the form of trees to which the atomizing nozzles are attached and by which they are supported.

Sometimes some sort of a diffuser is used on the inlet of the washer to distribute the air equally across the area this being in the shape of a perforated plate or a row of louvres. At the outlet of the washer a series of eliminator plates are installed so that the air in leaving will be thrown from one plate to the other and deposit all of the entrained water on the plates. A circulation pump is used to deliver the water to the nozzles under pressure sufficient to secure good atomiziation which pump takes its suction from the pan previously described. A glass panel door and a marine light inside of the washer are provided so that the washer operation may be observed when desired.

Air washers are manufactured in varying lengths and with one or two rows of water sprays; thus there are washers 4 ft., 5 ft., 7 ft., 9 ft., etc., long and the longer washers may have one or two rows of nozzles. Usually the shorter washers do not have sufficient length to get in two rows. In air conditioning the 9 ft. washer most frequently is used and this type will be particularly considered in this discussion to the exclusion of other types not suited for this type of work. See elevation of typical washer, Fig. 3 and cross section on Line A-A, Fig. 2. Where cooling coils are to be installed in the washer in-

The washing of air is a very important phase of air conditioning. If the spray water is sufficiently cold, water will be condensed out of the air which passes through it, with the result that dehumidification is brought about. On the other hand, if the water is relatively warm, the air passing through the spray will evaporate moisture from it, and humidification will result. In order to bring about a more complete understanding of the subject, the first part of this article covers spray washing. This is the seventh installment of Mr. Alt's series on practical air conditioning

Air Conditioning Stores and Shops

By H. L. Alt

stead of cooling the water in some outside cooler, the length may run to 13 ft., or over, depending on the space ocupied by the coil which space is added to the 9 ft. necessary for the ordinary washer operation. Double rows of sprays are emphatically recommended for all conditioning work as the saturation of the air passing through two sprays becomes more close to 100 per cent and the mixture of the air with the spray water is more positive and perfect.

When used as a humidifier the washer is supplied

a. With heated air
b. With heated water
c. Or a combination or both

and the amount of humidifying is controlled by the temperature of the air leaving the washer which should be practically saturated at that temperature; usually this leaving temperature is around 50 deg. Fahr. as it will be seen in Table 1 that air saturated at about 50 deg. Fahr. will have 50 per cent relative humidity when raised up to a room temperature around 70 deg. Fahr.

Each spray nozzle is supplied with about 1.8 g.p.m., of water and there should be not less than 5 nozzles per thousand c.f.m. handles. Besides this, there are flooding nozzles for the eliminator plates each requiring about 1 g.p.m., of water additional. The air should leave the washer around 2 degrees above the water temperature. The air entering the washer should be not less than 35 deg. Fahr. to avoid danger of freezing the water piping. When the water is not heated artificially and one bank of sprays together with the eliminator nozzles are in use, the air should be cooled 70 per cent of the wet bulb depression or 70 per cent of the number of degrees between the dry bulb and wet bulb readings of the entering air. With both rows of sprays in operation under the same conditions the air will be cooled 99 per cent of the wet bulb depression but in both cases moisture will be added to the air and the washer will be operating as a humidifier.

OPERATION OF THE DEHUMIDIFIER

If the washer is supplied with cooled water and both banks of sprays are operated, the temperature of the leaving air will be a certain number of degrees above that of the water temperature, this number of degrees being less than 10 per cent of the difference between the temperature of the entering air and the water. For example: if the entering air is at 80 deg. Fahr. and well water is used in the washer at 50 deg. Fahr. the difference between the entering air temperature and the water temperature is

80 deg. Fahr. minus 50 deg. Fahr. or 30 degrees

and, therefore, the temperature between the leaving air and the temperature of the water will be less than

30 degrees multiplied by 10 per cent or 3 degrees

and, therefore, the leaving air will be less than

50 deg. Fahr. plus 3 degrees or 53 deg. Fahr.

Air washers may be built in almost any size and capacity and a rough idea of the standard sizes is given in Table 2 so that some idea of the space required may be obtained if an air washer catalog does not happen to be available; the velocities are assumed to be 500 f.p.m. through the free area of the washer above the pan which velocity should be approximated in order to secure good results in air conditioning work.

In heating work it is a well known fact that a certain amount of heat is given off by human beings in most places of assembly such as theaters, assembly halls, and similar room requiring no heat at all when fully occupied. Owing to the fact that these rooms must be warmed before the arrival of the occupants, no consideration of this body heat is given in heating calculations but where a

room is to be cooled, the body heat must be carried away by the cooling air if the temperature in the room is to be prevented from rising.

Besides giving off a certain amount of heat, the human body also gives off a certain amount of moisture in the shape of evaporation from the skin, and in the breath.

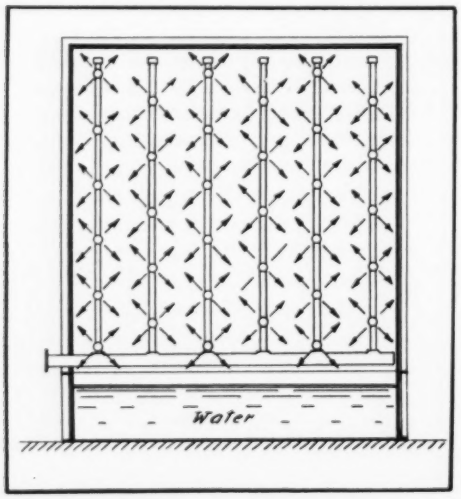


Fig. 2—This drawing shows a cross section view of the washer illustrated in Fig. 3, at the line A-A

which moisture has a certain amount of latent heat—being in the form of vapor. This latent heat must be removed before the moisture will condense in a form that it can be removed from the air. For temperatures maintained in the average conditioned building and for people seated or not engaged in any active manual work the amount of heat radiated from the body plus the latent heat in the moisture thrown off has been found to approximate 400 Btu. per hour per person. As the temperature rises, the radiated heat becomes less and the moisture becomes more, the loss in one being closely compensated for in the increase in the other so that the total of 400 Btu. is closely followed for the temperature range from about 65 deg. Fahr. to about 95 deg. Fahr.

The heat radiated must be removed by the air raising the temperature of the air and is termed "sensible heat" as it will register on the dry bulb thermometer while the moisture, which also must be removed by the air, does not change the temperature of the air but adds to the humidity of the air and therefore is termed latent heat.

TABLE 1
Properties of Air

Temp. Deg. F.	Cu. Ft. per lb.	Weight per Cu. Ft.	Grains Saturated Per lb.	Grains Saturated per Cu. Ft.	Cubic Feet Raised 1 deg. F. by 1 Btu.
—20		0.090		0.219	45.96
—10		0.088		0.356	47.00
— 5		0.087		0.450	47.52
Zero	11.58	0.086	5.47	0.564	48.77
5		0.085	7.10	0.705	
10		0.084	9.16	0.873	49.90
15		0.083	11.77	1.075	
20		0.082	15.01	1.321	50.83
25		0.081	19.10		
30		0.081	24.11	1.96	52.00
32	12.38	0.080		2.11	
35		0.079	29.90	2.37	
40	12.58	0.079	36.40	2.85	52.92
45		0.078	44.20	3.41	
50	12.84	0.077	53.50	4.08	53.94
55		0.077	64.40	4.85	
60		0.076	77.30	5.74	55.02
65		0.076	92.60	6.78	
70	13.34	0.075	110.5	7.98	56.30
75		0.074	131.4	9.36	
80	13.59	0.073	155.8	10.93	57.22
85		0.073	184.4	12.73	
90	13.84	0.072	217.6	14.79	58.40
95		0.072	256.3	17.12	
100	14.09	0.071	301.3	19.77	59.10
105		0.070	354.0	22.75	

TABLE 2
Sizes of Standard Commercial Air Washers

Capacity at 500 fpm. Velocity	Overall Width	Overall Height	Space for Pump and Pump-Cap. Connections	
cfm.	Ft.-In.	Ft.-In.	gpm.	Ft.-In.
4,500	3'-4"	4'-2"	55	3'-0"
9,000	3'-4"	7'-2"	100	3'-0"
15,000	5'-4"	7'-2"	154	3'-6"
20,000	5'-4"	9'-2"	200	3'-6"
30,000	6'-4"	11'-2"	285	4'-0"
40,000	8'-4"	11'-2"	408	4'-0"
50,000	10'-4"	11'-2"	477	4'-6"
60,000	12'-4"	11'-2"	559	4'-6"
70,000	14'-4"	11'-2"	676	4'-6"
80,000	16'-4"	11'-2"	758	4'-6"
90,000	18'-4"	11'-2"	875	5'-0"
100,000	20'-4"	11'-2"	957	5'-0"

NOTE—Other intermediate sizes also are built as standard; the space for pump is the additional width required on the side of the washer for the installation of the pump and the pipe connections between the pump and the washer. Length of washer is 9 ft. 0 in. in all cases.

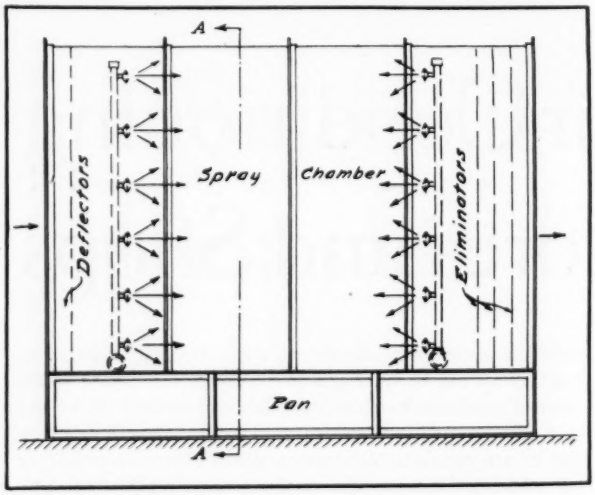
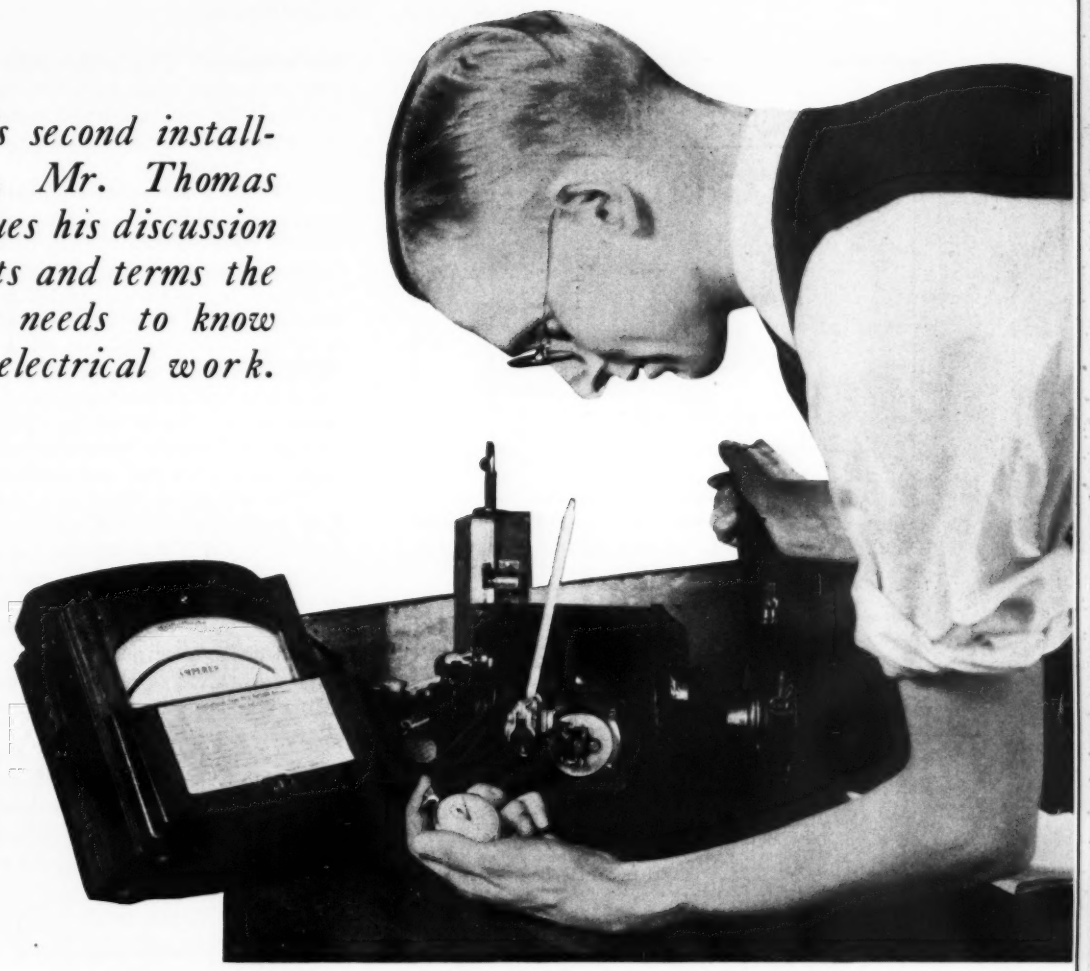


Fig. 3—Here is an elevation view of a typical air washer. Double rows of sprays are recommended

Table 3 shows the relation between the amounts of sensible and latent heat given off by the body under different temperatures of the dry bulb which are room temperatures under which the conditions noted will occur. It will be seen that the sensible heat graduates from 300

(Continued on Page 105)

In this second installment, Mr. Thomas continues his discussion of facts and terms the dealer needs to know about electrical work.



Here, a motor is being tested with a hand brake, thermometer and ammeter

Pointers on Electricity for the A. H. and A. C. Dealer

By O. W. Thomas

DURING our last discussion, we considered the various characteristics of direct current electricity. Now it would be logical to take up the subject of direct current (D.C.) motors to show how direct current electricity is utilized.

"Fig. 1 represents a simple two-pole D.C. motor with a simple winding. To make it simple, the brushes are shown making contact directly with the armature windings. In an actual motor each loop of the armature windings would be connected to one segment of the commutator and the brushes would make contact with the commutator, which consists of a number of insulated copper segments that are wired to the windings. The brushes make contact with these segments as the armature turns and this supplies current to the armature.

"In Fig. 2 the current comes in the right hand brush and flows through the armature windings. You will notice that in the case of the upper half of the armature the current in the top part of the loop is flowing toward the center of the armature while in the lower half the current in the top of the loop is flowing away from the center. The current in loop X is coming up through the paper while the current in loop Y is going down through the paper. A magnetic field is formed between the north and south poles by the current in the field windings. If the force on the loop Y is to the right, the force on loop X is to the left, for they are in the

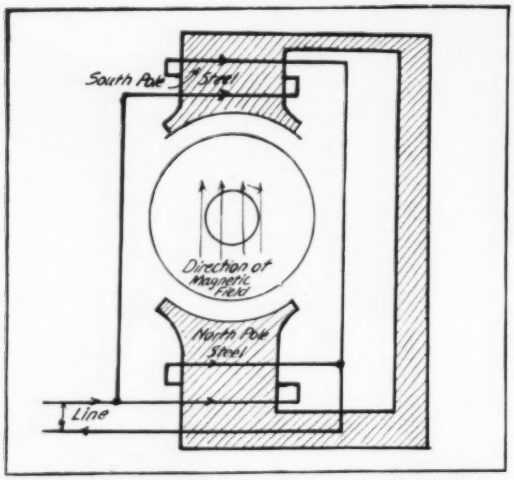


Fig. 1—This illustration shows the features of a simple two-pole D.C. motor with a simple winding

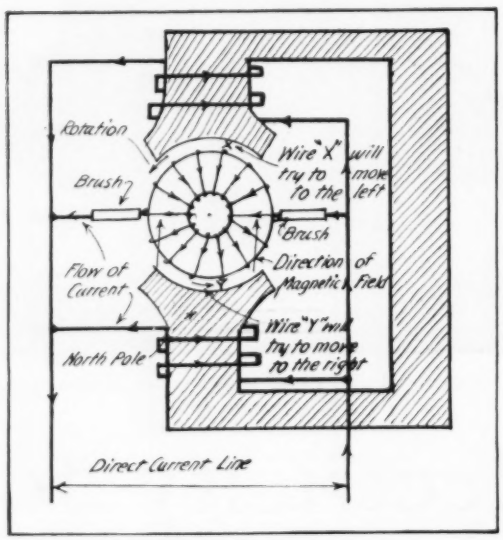


Fig. 2—In this case, the current comes in the right hand brush and flows out through the armature windings

same magnetic field with the current flowing in the opposite direction. Both the force on Y and on X tend to make the armature turn as shown.

"Depending on the type of motor, the stationary field coils are connected to the line in series or in parallel, or both in series and parallel with the armature. Fig. 2 is a diagram for a shunt motor because the field coils are shown in parallel with the armature.

"D.C. motors are divided into three groups, the series, the shunt, and the compound types, depending for classification on how the field coils are connected. In the series motor the field coils are in series with the armature; in the shunt motor they are in parallel with it; and in the compound motor part of the field coils are in series and part are in parallel with the armature.

"The speed at which a D.C. motor runs depends entirely on how it is designed, the load, and the voltage.

"The shunt motor has the field coils in parallel with the armature. This motor has a fairly high starting pull or torque with moderate starting current. It is practically a constant speed motor for any given voltage setting. The shunt motor is one of the most simple D. C. motors.

"The series motor has the field coils in series with the armature. It has the highest starting pull or torque for the same starting current of any of the three types. It is the best type to use whenever variable speed is necessary because only a small resistance is required to slow it down. A series motor slows down as the load is increased and speeds up when the load is decreased. Without a load this speeding up continues until the current is cut off or the motor is damaged, therefore, a series motor should not be run without a load. This type is used widely because of the low starting current, high starting torque, and ease of control.

"The compound motor is a combination of the series and shunt motors, with its characteristics between the two of them. The starting current is lower than the shunt motor for the same starting torque. The compound motor usually slows down slightly with an increase in load, though this depends on the design. It is difficult to slow down to half speed because so much

(Continued on Page 108)

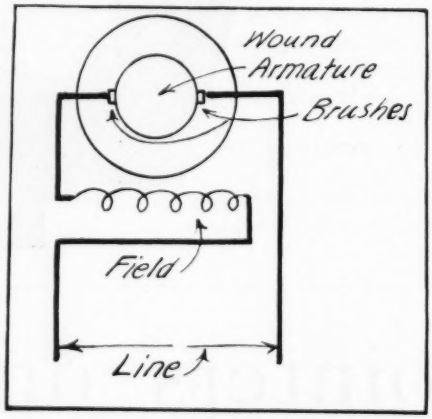


Fig. 3—Here is a wiring diagram for a shunt wound D.C. motor

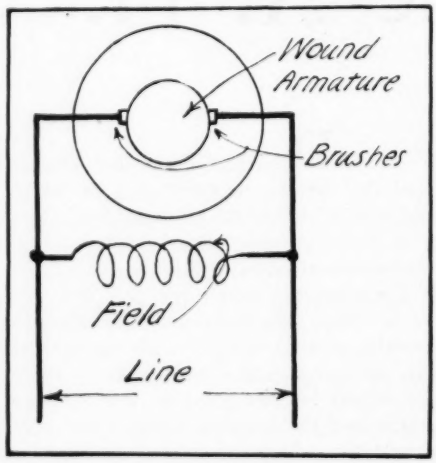
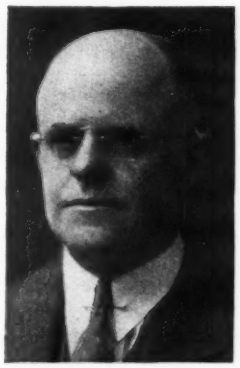


Fig. 4—The features of a series wound D.C. motor are indicated here

Aroused by maneuvers of fuel producers in battle for domestic market, oil burner dealers rally behind

ARTHUR W. CLARK
executive director, newly organized
National Oil Burner Dealers Association



To Save Burner Business For Dealers

I CONSIDER it a great privilege to preside over what I believe to be the first large gathering when distributors and dealers of oil burning equipment have assembled to consider their general problems, with no representation being present from manufacturers or other allied interests.

The general committee that is sponsoring this meeting has given earnest consideration to the many problems concerning the oil burner dealer and in a sincere effort to have this meeting truly representative of the oil burner distributor and dealer, this Committee decided that this gathering should be limited strictly to those engaged in the sale of oil burners and/or oil burning boiler units as distributors and dealers, in order that only distributors and dealers would be present when consideration could be given to the common problems of the dealer for the purpose of locating a simple, workable plan that would improve, protect and preserve the present and future sale of oil burning equipment by dealers.

When earnest consideration is given to the present status of the oil burner industry, we must confess that, while confronted with a genuine desire of the public to own oil burning equipment, the industry from a manufacturing and from a retail sales standpoint is not in a condition that is conducive to growth or confidence.

GROWTH IS CHECKED

Many are the plans and ideas that have been advanced to increase the volume of yearly sales and as many are the recommendations that have been made to correct and to improve the sale and installation of oil burning equipment, yet here we are at the cross roads that do not provide safe and secure traveling for those with an investment of time and money in this business as distributors or dealers.

With your kind indulgence, I would like to cover briefly the history of the industry, with particular reference to that part that has been taken in the past by dealers in oil burners and by the fuel oil companies.

I am sure that the most advanced student of the theory that installed oil burners should sell for a price within the reach of the mass market will concede that ten years ago the oil burner dealer was forced to blaze his path to a sale through a wilderness of prejudice and misunderstanding that made him a real pioneer and not always was the sale profitable when the cost of servicing the equipment in an experimental stage was considered.

There were few at that time that were willing to concede a future for this industry.

LITTLE HELP FROM OIL COMPANIES

What I am interested in ascertaining at this point in our review of oil burner history is where and what was the attitude of many of the major oil companies during the pioneering and experimental stage of oil burners.

If the records of the industry covering this period are correct, there is very little evidence of any desire on the part of the major oil companies to become enthused over the possibilities of a desirable and profitable fuel oil gallonage and there is little in the records or from the experience of oil burner dealers in business in the early years of the industry to indicate that there was any desire to cooperate with pioneer dealers to advance the sale of oil burning equipment.

It was claimed by no less an eminent authority than the Standard Oil Co. of New Jersey that fuel oil production had its limitations, unless sale of gasoline could be materially increased. There was no cry of a controlled fuel oil market by dealers then, because there was no fuel oil market existing and no major oil company had the foresight or the interest to believe that through development of oil burning installations a profitable and sizable market for fuel oil could be established.

So, the oil burner dealer of that period struggled on, without the interest or cooperation of those that now seek to gain control, by fair or foul means, of a market that has been established by oil burner dealers with their time and money. We claim that the pioneer dealer, that

Address by Mr. Clark at dealer mass meeting, New York, Oct. 9.

built the oil burner industry, has created a fuel oil market for those that are now desirous of reforming the oil burner industry to meet their special needs.

PRESENT CONDITIONS

With a slight improvement in general business conditions, the average oil burner dealer was looking forward to this season's business in the hope that sales at a reasonable business profit would carry the business for another year, believing that ultimately their business would be made profitable by a genuine demand of the public and with all the so-called cutting of prices by a minority of the dealers in the industry and the restrictive rules on oil burners that have been forced on the dealer, particularly in this section of the country, there was a fair chance for a majority of the dealers selling the volume of burners to end this year "breaking even," if not earning a fair business profit.

CAUSES OF DEALER PROBLEM

If we are to consider the causes that have contributed to the present status of dealer selling, I would list them as follows, in the order of their importance:

(*a*) The competition of major and independent oil companies using the oil burner and the service connected with the oil burner as a price football to settle competitive squabbles on volume and price of fuel oil.

(*b*) The ability of home owners to purchase storage tanks, combustion, electrical and piping material at prices as low as the cost to the dealer.

(*c*) The unwarranted restrictions placed on the installation of oil burners by some city and town officials.

(*d*) Price cutting by dealers due to the absence of knowledge of what is proper costs, quoting on one hundred jobs yearly at ridiculously low prices and selling ten jobs yearly, thereby making the path of the dealer that understands his costs and must obtain a higher price that much harder.

(*e*) The absence of a strong national dealer association uncontrolled by the contributions of oil burner manufacturers, oil companies and allied industries; an association strong enough numerically and financially to tackle the problems of the dealer and without fear or favor work to solve these problems to keep the dealer in business.

(*f*) We must concede that there are too many dealers competing for the present yearly volume of oil burner business and there is no one to blame for this except some of the manufacturers who pursue a policy of creating dealers without business knowledge and suitable financial backing, which is extremely destructive to the industry, when we consider that 3,000 dealers sold 75 per cent of the total volume of oil burners that were sold by dealers in 1933. We need not stretch our imagination very much to understand that there is not very much left for the other so-called 6,000 oil burner dealers in the United States that sold only 25 per cent of the 1933 volume. There is certainly a requirement for reform in this direction.

Our answer to the claim for larger unit volume prices within the reach of the so-called mass market is that we are for it, provided that the dealer can purchase his equipment at a price that will permit him to sell and install this equipment at a reasonable business profit, without conceding the control of the fuel oil market to any large company or set of companies in the business.

Battle of Fuels Capitalized on by Oil Dealers

(Continued from Page 73)

ples Gas Light & Coke Co., the Public Service Co. of Northern Illinois and the Western United Gas & Electric Co., whose respective territories cover a large portion of northern Illinois. A natural gas pipe line had recently been run into the area which made lower rates possible and, therefore, rendered home heating by gas a much more feasible proposition than previously. The new program was designed to build a load for the new capacity by urging the home owner to use gas for heating.

The campaign was planned on a large scale. The appropriation, it was reported at the time, was $1,500,000. The day seldom passes when there is not an advertisement in at least one Chicago newspaper. All of them are on the list, as is every publication of any standing, including weeklies, in the entire area. And the advertisements employ large space. Radio has also been used.

As the gas campaign proceeded, some of the statements began to get under the skin of the coal companies and retorts began to appear in copy of the Chicago Coal Merchants Association.

The oil heat people sensed similar references with respect to their mode of heating, and some of the individual distributors put in a sharp word or two. The oil burner participation was not a major one, since it was an unorganized effort, but it did include one swipe.

"Have you," inquired an advertisement of a dealer for * * * * * * burners, in bold headline type spread over a full page, "a white elephant in your basement?" The reference, of course, was to gas heating plants.

The Chicago Better Business Bureau had been watching these wholesale deliveries of mud on the doorsteps of the respective competitors. Kenneth Barnard, its manager, felt very strongly that the mounting blaze of reprisals was such as not only to paralyze advertising so far as the advertisers themselves were concerned, but to confuse the public. Consequently, a meeting was called.

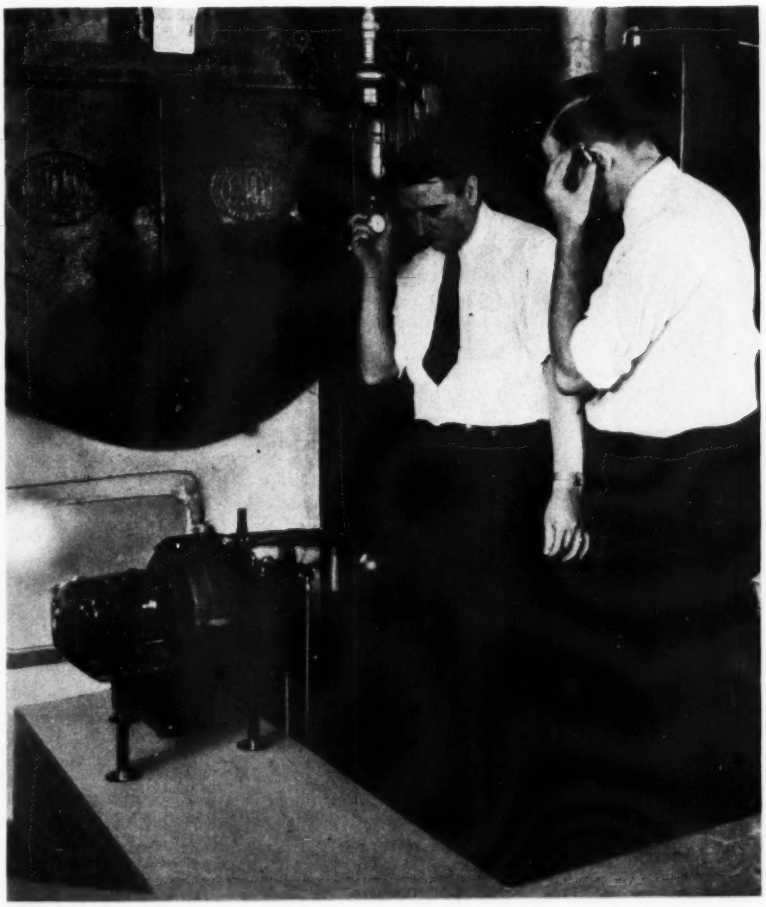
The warriors got together with surprising willingness and enthusiasm. There emerged an agreement that each interest should constructively advertise the good points of its own fuel and not destructively stress the weak points of competitive fuels. Moreover, the Bureau was authorized to act as the final judge of what constituted fair statements, each party agreeing to submit copy prior to publication for revision and correction by the Bureau.

Everything went along fine for a while. "During this

BURNER OPERATING AT FULL SPEED...

YET

THE TICKING OF A WATCH COULD BE HEARD



PROGRESSIVE ROTATION Burner by Silent Glow passes rigid noise test

Just *how* quietly does a Silent Glow PROGRESSIVE ROTATION oil burner operate, dealers ask us. We reply—so silently you can hear a watch tick beside it. And here's how we back up our statement. A short time ago two engineers stood beside a Model 3800 burner. They took out their watches and put them near their ears. With the burner operating at full speed, burning 14 2/7th gallons of No. 4 oil per hour, they were still able to hear the ticking of their watches distinctly.

The quietness of this new Silent Glow burner proves the remarkable smoothness of operation that PROGRESSIVE ROTATION makes possible. This, in turn, means that PROGRESSIVE ROTATION effects more efficient combustion—furnishes more heat from less fuel—and makes servicing virtually a thing of the past.

Here, indeed, is a burner that makes ordinary burners distinctly old-fashioned—that will still be modern five or ten years from now. And you can sell it at a price 75% of home-owners can well afford to pay. Mail the coupon below at once for full facts on PROGRESSIVE ROTATION.

SILENT GLOW OIL BURNER CORPORATION

HARTFORD, CONN.

BOSTON CHICAGO ST. PAUL

SILENT GLOW OIL BURNER CORP.
(Dept. DE11)
Hartford, Conn.

Please send me at once the complete story of *Progressive Rotation.*

Name.....

Street.....

City..... State.....

period," the Bureau reported, "the public received the benefit of confidence-building constructive advertising copy." But this situation did not last for long.

The gas people grew restive, felt their copy was "emasculated" under the Bureau's editing. It was their position that the one big argument for gas heat is convenience and that their strongest sales arguments must deal with the inconvenience which gas heating overcomes.

At another meeting, the gas representatives announced their intention of being fair in their advertising, but, at the same time, a distinct unwillingness to have the Bureau function as the judge. The session concluded with the understanding that the agreement was abrogated and that the "war" would resume.

It did. Presently there appeared gas advertisements under such headings as "Why Be a Furnace Slave," and

Part of the battery of 120 heating plants comprising the new heating installation at Mount Holyoke College, South Hadley, Mass.

"End This Drudgery—Heat with Gas" (not to be construed as an invitation to suicide). Copy spoke of "back-breaking coal shoveling," "anxious waiting for heat to come up," "dirty ashes."

If this was the gas people's idea of following an intention to be fair—which position was apparently taken in all sincerity—it most certainly did not meet up with the coal dealers' conceptions of that adjective. The Coal Merchants Association proceeded, as it had promised, to "defend itself vigorously should any copy be started which it considered derogatory."

And so, for example, came an advertisement in which you see a photograph of a husband saying to wife, "Mary, which do you want—new clothes or gas heat?" *"Don't Be Ridiculous!"* responds Mary, pleasantly. "Of course we would rather buy new clothes than expensive gas heat!" And so it went: "Don't order fuel! Get the facts about low cost Gas Heat." "We bought a car with the money we saved using Coal Heat." "You Don't Ride in a Horse Car." "A Challenge to Gas Heat Claims."

The point was gradually reached where you just about had to consult a coal advertisement in order to read about gas heat, and vice versa. It almost seems a competition whose goal is to say as much as possible about the other's product and as little as possible about one's own.

What about the results?

The gas companies regard their program as successful. Since the campaign began they have secured installations of something more than 20,000 gas heating systems in homes.

So far as coal is concerned, the struggle is of course largely a defensive one, since coal formerly had the home heating field almost exclusively as its own. Some ground has undoubtedly been regained in the form of gas heat installations which have been ordered taken out by householders who tried that fuel.

The oil burner people, who never waded into the scrap to any major extent and have kept almost entirely aloof from the warfare ever since the crack-up of the truce, are having a rather swell time of it—and that may be a very revealing circumstance. The gas campaign, reports the head of the Chicago branch of one of the largest oil burner companies, has created a preference for automatic heat upon which oil burner merchandisers have been able to capitalize very nicely.

Incidentally, a new element in the picture is that the oil burner interests are going to pursue their own case more vigorously through a co-operative advertising program. The Chicago Oil Burner Association and the Burning Oil Distributors Association have joined in a newspaper campaign starting this month.

CONSUMERS LOSE CONFIDENCE

The asserted intention of the proponents of this campaign is to concentrate entirely upon advancing the merits of their own type of product.

Whether in view of the generally pugnacious atmosphere the oil burner group will be able to keep clear of the battle, however firm its purpose in that respect, is of course a question. As in warfare between nations, individual neutrality is a hard thing to maintain in an advertising fight.

The Chicago Better Business Bureau's stand that these knocking tactics also damage consumer confidence in all advertising is an eminently supportable one. Let it be assumed that at no time throughout this controversy has any party concerned made an untruthful statement. In fact that is probably literally true, since the divergent conclusions presented by each advertiser are matters of interpretation or of narrow, special circumstances, rather than of deliberate dishonesty.

But when one party says one thing and the other states what seems to be a directly conflicting fact, the likely conclusion of the consumer is that one of the two is a liar—probably both. As an efficient instrument of distribution, advertising can as ill-afford the seemingly dishonest as it can the downright untruthful.

In summation, it would seem almost pardonable to paraphrase an old proverb (finish it yourself): "Fuels rush in. . . ."

Proved worthy of its place in The Industry —The Dole Syphon Air Valve No. 1.

Dole POLICY *means* PROFIT *for you*

FROM among all the rules and policies of our business, *this* can be singled out as our strongest conviction—We believe first, last and always in a *sound profit for our customer*, whether he be the jobber, or indirectly the steamfitter who buys from the jobber for resale, and in *satisfaction for the user.*

OVER ›

DOLE VALVES

NO PREMIUM

You can enjoy all the benefits of Dole Policies—Yet you pay no premium: Prices are "in line." Further, belief in a substantial, dependable profit for the jobber and steamfitter is far more than a price policy. It affects every step in the manufacture, purchase and sale of Dole Air and Vacuum Valves.

And the Product Fits the Policy

Of course, the sale comes first, then the profit, therefore, Dole Valves are made with every possible sales appeal; pleasing design, chromium plating, attractive packaging, full range of types to assure a complete line—and a mechanical excellence that has given Dole Valves an unequalled record for *Performance*. The *Prestige* associated with the name "Dole," and carried to the largest buyers by consistent advertising, keeps Dole Valves continuously in demand.

To maintain speedy turnover Dole Policy also keeps the sales channels free from obstruction. The positive guarantee commands respect; replacements are willingly made to keep our record clear and customers happy. It is final evidence of sound engineering that in the course of many years so few replacement requests have been made.

This statement of policy is offered partly as a reminder to those who will be ordering air and vacuum valve stocks or replacements in the coming weeks. But also it restates the case for the many jobbers and steamfitters who have been selling Dole Valves at a profit to themselves and satisfaction to their customers. Check *your* stock today—and remember Dole Policy.

THE DOLE VALVE COMPANY

1901-1933 Carroll Ave., Chicago, Ill., U. S. A.

Offices and Representatives in all Principal Cities

Dole

AIR AND VACUUM VALVES

COPYRIGHT 1934 THE DOLE VALVE CO. PRINTED IN U. S. A.

Automatic Heat and Air Conditioning Questions

NOT ENOUGH HEAT ON THIS JOB

To the Editor:

I have an indirect heater hooked up on a boiler, which indirect heater is connected to a 120 gal. hot water tank. It does not heat the tank more than 120 deg. Fahr. The circulation from the tank to the indirect heater is satisfactory, but the water from the heating boiler to the indirect circulates only when the oil burner is running. At such times the indirect heater becomes very hot, but cools down again about 5 minutes after the burner shuts off. The combustion chamber is 15 in. high, or ½ in. below the center line of the return from the indirect heater. The burner is controlled by a line-voltage aquastat which has a differential of 30 or 40 degrees and is without adjustment.

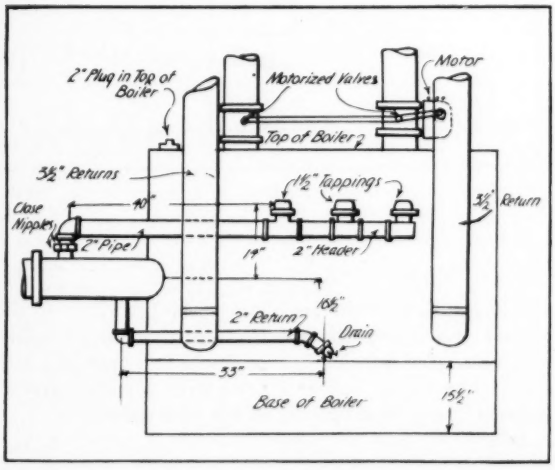


Fig. 1

The motorized valves are made up with close nipples and there is not enough room to raise them high enough to get a tee in, but there is a 2-in. plug in the top of the boiler at the back. Would it be better to take a 2-in. line from the top of the boiler down to the indirect heater with a tee in the top of this line to vent it? I could run this small vent up to the expansion tank.

Conn. B. G.

To the Reader:

The sketch submitted by our correspondent indicating the arrangement of the installation which is giving trouble is shown in Fig. 1 and we believe the chief cause of his trouble is the fact that with the lower temperatures generally used on a hot water boiler there is not sufficient tendency to circulate in the boiler pipe circuit to and from the indirect heater. When the burner opens, the temperature of the boiler is raised and a general movement of the boiler water is started, both of which will aid the circulation to the indirect.

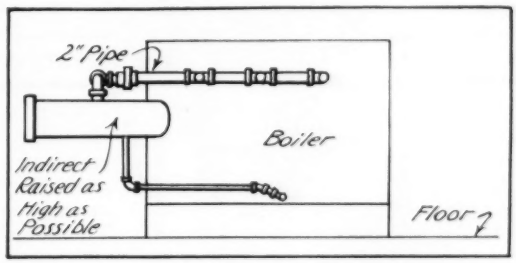


Fig. 2

We also note that there is only a distance of 16½ in. from the indirect heater down to the point where the indirect return again enters the boiler, which is a very small vertical head and should be increased if possible; the distance from the indirect heater to the upper tappings on the boiler is of little use, as the cooling of the water in this circuit does not occur until it reaches

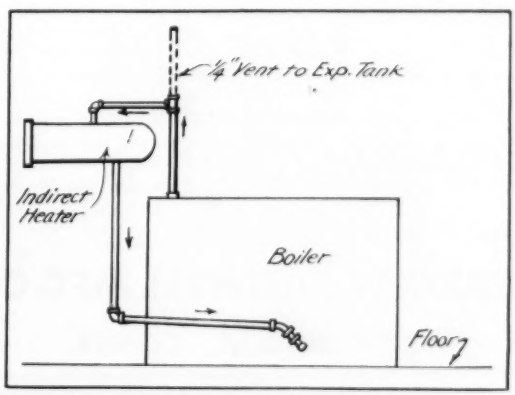


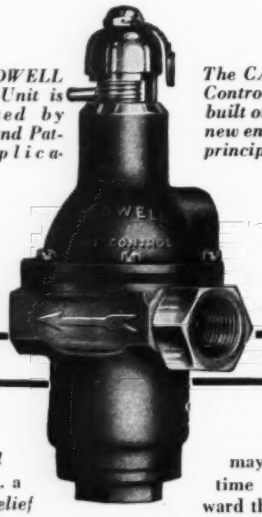
Fig. 3

• BACK PRESSURE VALVE •
• FEED VALVE • RELIEF VALVE •
• BALL CHECK AND SCREEN •

IN ONE
complete
UNIT

The CADWELL Control Unit is Protected by Patents and Patent Applications.

The CADWELL Control Unit is built on entirely new engineering principles.



• CADWELL CONTROL •

THE *combined* functions of . . . a *feed valve* . . . a *relief valve* . . . a *back pressure valve* . . . a *ball check* and *screen* . . . are *all* provided *by this one unit.* In the CADWELL Control Unit . . . and *only* in the CADWELL Control Unit . . . can you be assured of the exceptional advantages of this combination.

Differing sharply from the ordinary type of valve, the CADWELL Control Unit closes *by internal pressure.* There are no heavy springs to cause sticky valve seats. One pound drop in pressure closes valve *tightly.* The CADWELL Control Unit may be tested at any time with one downward thrust of center pin. This action also cleanses the valve seat of any sediment. Both the screen and the feed valve may be detached for cleansing or inspection *without drawing water from system.* The check valve *prevents syphoning* occurring from breaks in the supply line. Because the CADWELL Control Unit is constructed with a point relief, a greater degree of *sensitivity and accuracy* is attained. The CADWELL Control Unit has a lever on the top to allow for *quick filling.*

WHY not order these valves with your orders of Perfection Floor and Ceiling Plates and Cadwell Air Valves?

Sold Through the Wholesaler.

Write today for circulars which give the full details

Some territories are still open for sales representatives. References required.

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

CADWELL
CONTROL UNIT
FOR HOT WATER HEATING SYSTEMS

the indirect heater, so that head above the level of the heater is not of much service.

We suggest that the indirect heater be raised as much as possible with the present connections by removing the elbows and unions from the vertical pipes and thus giving a greater head on the return leg from the indirect heater. Better still would be to use the 2-in. top tapping on the boiler and to elevate the heater above this connection if permissible without spoiling the circulation head to the hot water tank. These two schemes are illustrated in Figs. 2 and 3, and in Fig. 3 it will be noted that an automatic air vent is required as suggested by our correspondent, but that such a vent is not necessary in Fig. 2.

HEATING WATER AUTOMATICALLY

TO THE EDITOR:

In a job with a 220 gal. hot water tank used for domestic purposes the water is heated by a No. 25 size of indirect heater, name of which is enclosed. This heater does not give sufficient hot water although it is connected up in a proper manner as far as I can see—shown in Fig. 1. The tappings in the shell of the indirect heater

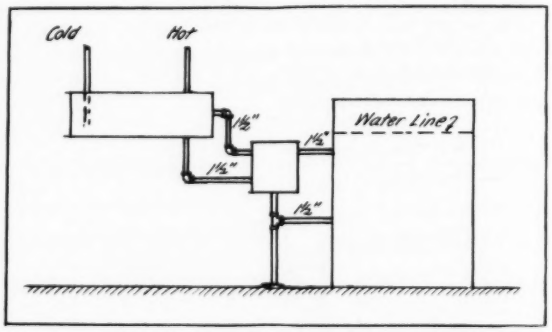


Fig. 4

are 2-in., while the tapping in the boiler (steam) are 1½-in., and all of the circulating pipe is 1½ in. in size. Would you advise the substitution of a larger heater? What size coal burning heater would be required for the job? The steam boiler is fired with a stoker and the indirect heater tappings are on the rear section.

Wis. S. H.

TO THE READER:

The sketch which you show in Fig. 4 seems to have the return line from the indirect heater to the steam boiler shown up rather high resulting in a very small head to circulate the indirect heater; if this is not an oversight in making the sketch, the return from the indirect heater should be dropped straight down from the heater to a point opposite the boiler return tapping and then should be run horizontally into the return tapping.

Another thing is that the No. 25 heater of the make referred to is rated as good only for a 160 gal. tank when installed below the water line on steam or vapor boilers based on a temperature rise of 100 degrees in three hours time. A third item is the use of 1½-in. piping between

the boiler and the indirect heater whereas the heater tappings are 2-in., and the piping should be at least this size.

Thus it will be seen that the heater performance is handicapped by three separate conditions; (a) too small for the tank capacity; (b) circulation piping undersize; (c) possibly inadequate height of the circulation pipes on the boiler side of the indirect heater.

As to whether the indirect heater should be enlarged we do not recommend this unless adequate sized circulation pipes and openings into the boiler can be provided and not unless the boiler has sufficient surplus capacity to carry the added load that a larger indirect heater would entail. If the boiler is adequate and only the tappings are too small we would suggest the installation of another indirect heater on the opposite side of the boiler and coupled to the tank in the same manner as the present heater in which case the use of 1½-in. pipes should not reduce the flow sufficiently to cause serious difficulty;

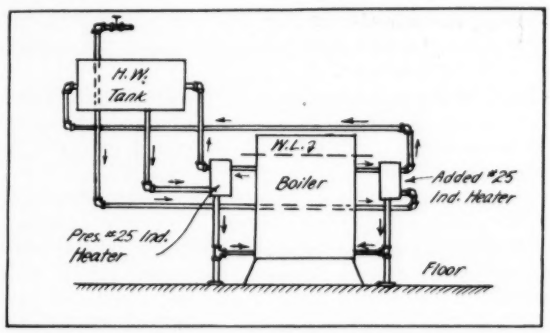


Fig. 5

anyway, it is evident that you would get double the amount of hot water that you are receiving with one indirect also connected up with the same size of pipe. See Fig. 5.

The capacity of the heater should be sufficient to heat all of the water in the tank in not over three hours—possibly less than three hours if there are periods of heavy load. The equivalent direct radiation load for heating the tank in a three hour period is

$$\frac{220 \text{ gal.} \times 8\frac{1}{3} \text{ lb.} \times 100 \text{ F}}{3 \times 240 \text{ Btu.}} \text{ or } 255 \text{ sq. ft.}$$

and the Btu. required to be added to the water per hour will be

255 sq. ft. × 240 Btu. or 61.000 Btu. approx.

A coal burning heater usually is considered as having a combustion rate around 6 lb. of coal per square foot of grate per hour and as transferring about 8,000 Btu. to the water from every pound of coal burned. On this basis the area of grate required for a coal burning heater would be

61,000 Btu./(8,000 Btu. × 6 lb.) or 1.3 sq. ft.

Conditioned Air, Inc., of Fargo, N. Dak., has been incorporated with a capital stock of $25,000. The incorporators are N. I. Lee, Frank S. Johnson and W. T. Lee.

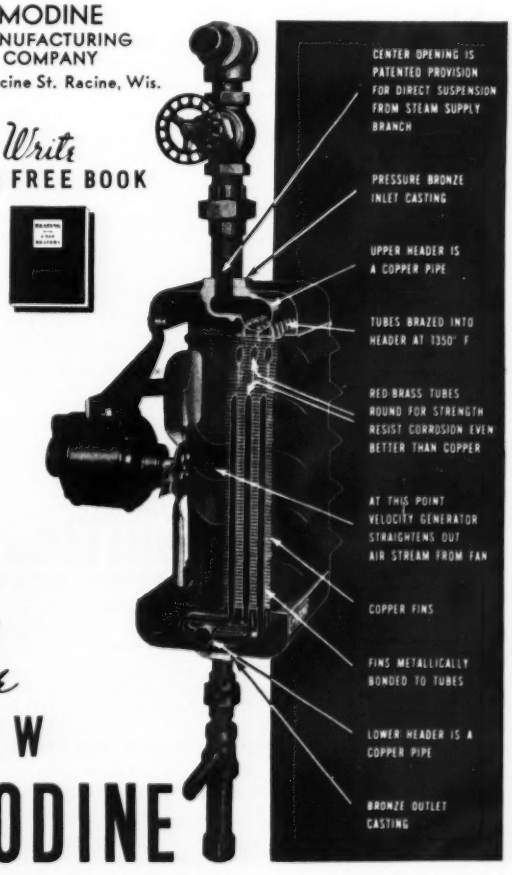
A UNIT HEATER OF NEW DESIGN

...WITH GREATER STRUCTURAL STRENGTH

Entirely new and outstandingly advanced in design . . . made by a manufacturer who not only helped pioneer the unit heater but still is foremost in the field . . . the new Modine is the latest development for commercial and industrial heating. ● In the new Modine *cylindrical* steam passages give the copper tanks and red-brass condenser tubes a strength many times in excess of requirements. The new *expansion bend* construction, exclusively Modine, permits condenser tubes to expand *individually and differentially.* A new *bonding process* enhances heat transfer from tube to fin. New *velocity generators* direct and control the air stream. New streamline design *readjustable deflectors* provide vertical direction of the air stream. ● These new features not only make the new Modine a better unit structurally but assure far more effective and economical distribution of heat. And the new Modine costs *you* no more.

MODINE
MANUFACTURING
COMPANY
1760 Racine St. Racine, Wis.

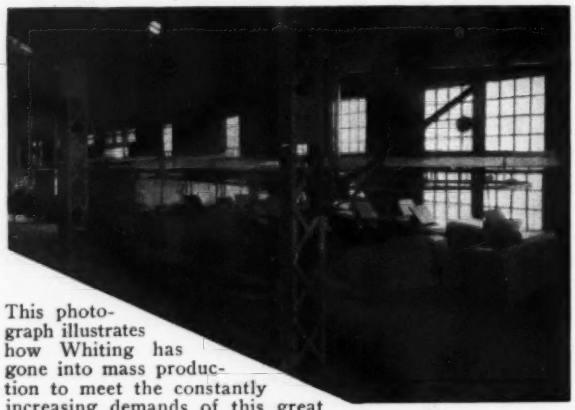
Write
FOR FREE BOOK


CENTER OPENING IS PATENTED PROVISION FOR DIRECT SUSPENSION FROM STEAM SUPPLY BRANCH
PRESSURE BRONZE INLET CASTING
UPPER HEADER IS A COPPER PIPE
TUBES BRAZED INTO HEADER AT 1350° F
RED BRASS TUBES ROUND FOR STRENGTH RESIST CORROSION EVEN BETTER THAN COPPER
AT THIS POINT VELOCITY GENERATOR STRAIGHTENS OUT AIR STREAM FROM FAN
COPPER FINS
FINS METALLICALLY BONDED TO TUBES
LOWER HEADER IS A COPPER PIPE
BRONZE OUTLET CASTING

The
NEW
MODINE
UNIT HEATER

Each tube of condenser, before entering lower header, bends in a way which provides for free expansion. This parallels high pressure boiler practice.

AUTOMATIC HEAT



This photograph illustrates how Whiting has gone into mass production to meet the constantly increasing demands of this great new market. It is a typical shop view of the progressive assembly system used to produce Whiting Stokers in a similar manner to the methods that have proved so successful in the automotive and other great industries. It shows hoppers for both domestic and commercial units passing from the furnace, which bakes on the beautiful and durable finish, to the final assembly line.

NOW IN MASS PRODUCTION FOR THE GREAT NEW MASS MARKET

Designed to open up a great undeveloped market, the **Whiting Stoker** is succeeding in a most impressive manner. Automatic Heat is now priced for the average American home. The stoker is at last in mass production.

Automatic oil and gas burners and earlier coal burners were largely limited to the class market. Then Whiting perfected the Dual Draft Burner, Five Speed Drive, Smoke-Eliminator and Masterstat Control. Now automatic heat can be more economical than the hand fired furnace.

With the stoker industry having the biggest year of its history—and the Whiting Stoker sweeping away all previous price limitations—a rare opportunity exists for progressive plumbing and heating contractors who are seeking new markets. Such dealers are invited to investigate the Whiting Stoker and the new field it taps. Mail us the coupon below for all the facts. Whiting Corp., 15683 Lathrop Avenue, Harvey (a Chicago Suburb), Illinois.

WHITING
UNDERFEED STOKER
1. DUAL DRAFT BURNER.
2. "SMOKE-ELIMINATOR".
3. FIVE-SPEED DRIVE.
4. "MASTERSTAT" CONTROL.
MANUFACTURED & SOLD BY
WHITING CORP. Harvey, Ill.
BUILDERS OF
POWER STOKERS, PULVERIZERS, CRANES, FOUNDRY EQUIPMENT, AIR SPECIALTIES, CHEMICAL EQUIPMENT AND SPECIAL MACHINERY

YOUR NEXT GREAT MARKET

Whiting Corp.,
15683 Lathrop Ave., Harvey, Ill.

We are dealers in.....
Send at once all facts regarding Whiting Stokers.

NAME .....

ADDRESS .....

Refrigerating Machinery Association Holds Annual Meeting in Chicago

The Refrigerating Machinery Association held its 21st annual meeting at the Stevens Hotel in Chicago on October 22 and 23, with the largest attendance in the history of the Association.

Among the outstanding features of the meeting were several addresses, among them the opening address by W. S. Shipley, president of the Association and head of the York Ice Machinery Corporation of York, Pa., who stressed the necessity for the stimulation of confidence in the minds of investors and business men by the balancing of the National Budget and some certainty as to the future stability of the dollar.

Emil Vilter, president of the Vilter Mfg. Co. of Milwaukee, Wis., in reporting for the Manufacturers' Committee, stated that wage rates had been substantially increased during the past year, in many cases in excess of the rates prevailing in 1929, in spite of the fact that there had been no appreciable increase in the volume of business in the Refrigerating Machinery Industry during the past year and while many concerns in the industry had suffered decreases.

A. H. Baer, vice president of the Carbondale Machine Corporation, Harrison, N. J., in reporting for the standing Committee on Standardization, stated in detail the satisfactory progress being made in this field.

The election of officers resulted as follows: President, D. Norris Benedict, Waynesboro, Pa.; vice president, J. M. Fernald, Omaha, Nebr. Members of the executive committee: D. Norris Benedict, chairman; A. H. Baer, Harrison, N. J.; J. I. Lyle, president of Carrier Corporation, Newark, N. J.; J. M. Fernald, Omaha, Nebr.; W. S. Shipley, York, Pa.; G. A. Heuser, Louisville, Ky., and Emil Vilter, Milwaukee, Wis.

It was unanimously decided to hold the spring meeting of the Association at Hot Springs, Va., on May 23, 24 and 25, 1935.

Will Conduct Three-Year Test of House Heating by Electricity

What is said to be the greatest electrical house-heating experiment will be conducted by the Washington State College at Mason City, the contractors town at the Grand Coulee damsite on the Columbia River, 92 miles west of Spokane.

More than 300 buildings in the city will be heated electrically the entire year through and careful study will be made. Some of the houses will also be air-conditioned to provide cool home interiors in the summer and these will be studied on a smaller scale.

The houses will be insulated—two of them with 1-inch thermax, two with plaster, two with aluminum foil, two with zonolite and two will be built entirely uninsulated.

Washington State College will install special recording equipment and the house heating units in the test homes will be metered separately from the lighting and other electrical elements.

The recording equipment will be placed in compartments built on the rear porches of the homes. The registering devices will be placed in different rooms in the homes to determine the evenness of heating and other details. These tests will cover a period of three years,

the time which it is estimated it will take to complete the low dam at the Grand Coulee, and it is expected to prove with definite data the practicability or the impracticability of house heating by electricity.

Gas Association Convention Hears Talk on "Gas in Air Conditioning"

Of particular interest to air conditioning engineers was an ably presented address entitled "Where Does Gas Stand in Air Conditioning?" delivered by J. W. Wrenn, director of the Promotional Sales Research Bureau of Pacific Gas and Electric Co., and secretary of the San Francisco Air Conditioning Society. Mr. Wrenn's talk was presented at the Wednesday morning, October 10th, session of the forty-first annual convention of the Pacific Coast Gas Association, held at Hotel Del Monte, Del Monte, Calif., October 9th to 11th, inclusive.

Aside from its able presentation, the subject of Mr. Wrenn's talk elicited lively interest on the part of the delegates who were eager to learn of the newly created market for gas that has been made available since the birth of the industry's newest science—air conditioning.

Modine Mfg. Co. Appoints Additional Sales Agents

The following new sales agents have been appointed by the Modine Mfg. Co., Racine, Wis.:

Allan Engineering Co., 2708 Live Oak Street, Dallas, Tex.; Allan Engineering Co., 408 First National Bank Bldg., Fort Worth, Tex.; Allan Engineering Co., 930 M & M Bldg., Houston, Tex.; Allan Engineering Co., 1824 Collins Street, Wichita Falls, Tex.; Allan Engineering Co., 436 Main Avenue, San Antonio, Tex.; I. E. Danford, 827 West Street, Caldwell, Ohio; R. King Rouse, 122 W. Central Avenue, Valdosta, Ga.; A. W. Maycock, 243 E. South Temple Street, Salt Lake City, Utah; Air Conditioning Utilities, 1214 Harney Street, Omaha, Neb.

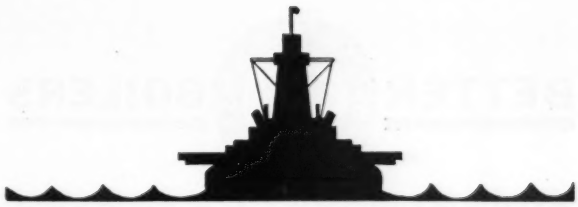
Elected Members of the Aluminum Code Authority

Harry W. Holt of Bohn Aluminum & Brass Corporation and R. G. McKay of Reynolds Metals Company were elected members of the Aluminum Code Authority at a meeting of the Association of Manufacturers in the Aluminum Industry, held recently at the Association's headquarters in the Graybar Building, New York City.

Combine Warehouses and Office at Buffalo and Open Tulsa Warehouse

Pure Carbonic, Incorporated, Lincoln Building, New York City, announces that the former Buffalo, N. Y., warehouses of Pure Carbonic, Incorporated, and Dry Ice, Inc., have been combined into a district office and warehouse and are now located at 386 Elm Street, Buffalo, N. Y. Arrangements have also been made to operate a warehouse at 215 North Detroit Street, Tulsa, Okla., for the sale of the products of Pure Carbonic, Incorporated, and Dry Ice, Inc.

Pure Carbonic, Incorporated, has also moved its warehouse at Jacksonville, Fla., to 107 East Bay Street in that city.



Thousands of

"MILWAUKEE" VALVES

are being used by the

U. S. NAVY

DEPARTMENT

The nation's most exacting customer . . . our own Uncle Sam . . . years ago placed his stamp of approval on "MILWAUKEE" Valves for use by the U. S. Navy Department. The rigid specifications and standards . . . the thorough and exacting tests by skilled Navy inspectors before final acceptance . . . make no unusual demands on "MILWAUKEE'S" complete precision manufacturing and testing facilities.

"MILWAUKEE" has but one recognized standard of precision manufacture. Regardless of whether "MILWAUKEE" Government Specification Valves are sold by the thousands, through "MILWAUKEE" jobbers, to the U. S. Navy, or our standard precision-made products are sold individually for some small replacement, the same precise care in manufacturing is employed.

The name "MILWAUKEE" is, therefore, more than a trade name . . . it is the buyer's Guarantee of Longer, More Dependable Service.

"MILWAUKEE" HEATING SPECIALTIES

are being selected for installation in many

FEDERAL BUILDING PROJECTS

. . . the same line of "MILWAUKEE" Heating Specialties which is sold by recognized, representative jobbers everywhere.

The ever-increasing demand for "MILWAUKEE" Heating Specialties by the nation's most particular buyers is convincing proof of the growing preference for these precision made units which have earned an outstanding reputation for higher operating efficiency and lowest maintenance costs.

The jobber who sells "MILWAUKEE" is protecting his own reputation for integrity and progressiveness by selling the products which surpass the most exacting requirements of the nation's most particular buyers.

SOLD BY LEADING RECOGNIZED JOBBERS EVERYWHERE

MILWAUKEE VALVE COMPANY

MILWAUKEE WISCONSIN

Manufacturers of

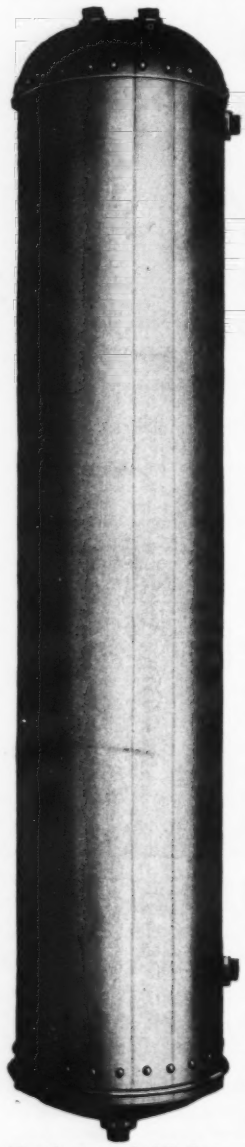
"MILWAUKEE" Heating Specialties "APPROVED" Bronze Valves

BETTER BOILERS

BETTER HOUSING PROGRAM

GUARANTEED 20 YEARS

ALL COPPER RUST-PROOF



The GERSTEIN & COOPER RANGE BOILER

Consider its Features — Cannot Rust — Cannot Corrode — Cannot Collapse. Made of Heavy Unalloyed Copper — Guaranteed 20 Years.

Sell these features on range boiler modernization jobs. Customer satisfaction is guaranteed for at least 20 years although G & C boilers are built to last a lifetime.

Consider also the firm behind the boiler—Gerstein & Cooper—Makers of all copper boilers for the past thirty-one years

WHOLESALERS SEEKING A PROFITABLE RANGE BOILER LINE SHOULD WRITE AT ONCE FOR TERRITORIAL FRANCHISE AND COMPLETE DETAILS.

The improved All Copper G&C Boiler Riveted Top and Bottom and Reinforced to insure against collapse.

G&C Copper boilers are stocked in 200, 250 and 350 pounds test pressure in standard sizes or are made to any size or pressure requirements on order.

GERSTEIN & COOPER CO.

South Boston, Massachusetts

Offices in New York and Baltimore

Representatives: Troop Water Heater Co., Pittsburgh; Edward Sinn, Harrison, N. J.; Strong, Carlisle & Hammond Co., Cleveland, Ohio

Sales Helps Offer Aid to Dealers—

Issues Eight Bulletins on Automatic Controls and Thermostats

The Mercoid Corporation of Chicago has just issued eight bulletins on automatic controls and thermostats. These bulletins are designed to be inserted in this company's loose-leaf catalog in order to keep it up to date.

Folder Describes Spencer Heater Co.'s Campaign

The Spencer Heater Company of Williamsport, Pa., has just issued a large folder, entitled "Two Important Helpers for Your Business," announcing the fact that this concern has qualified with the Federal Housing Administration to loan money to eligible borrowers for the installation of its boilers. The folder also stresses this company's time-payment plan and its newspaper advertising in 22 cities. Seven advertisements used in this campaign are reproduced in this folder.

Automatic Products Co. Issues Catalog of Controls

Automatic Products Company of Milwaukee, Wis., has issued a neat, loose-leaf catalog, consisting of 36 pages, 8½x11 in. in size, and illustrating and describing its products, including humidity regulators, room thermostats, refrigerant control valves, solenoid water valves, oil control valves, gas control valves, by-pass gas control valves, magnetic gas valves, motor operated gas valves, electric oil control valves, electric relays, heat regulator sets, etc. These controls are designed to be used in connection with oil burners, gas burners, coal burners, unit heaters, refrigeration, air conditioning, and mechanical stokers, etc.

A New Book on Air Conditioning Shows How to Estimate With Tables

"Jones' Estimating Tables on Air Requirements and Duct Sizes for Heating and Air Conditioning" is the title of a new book which has just been published and which will no doubt help to fill a long felt need in the new field of air conditioning. It is devoted to the subject of figuring air requirements and of sizing duct systems for forced air heating, with the result that its most precise application is to winter air conditioning. The observations and calculations which form the foundation for these tables were made with the idea in mind that forced air heating alone does not constitute air conditioning. This book defines air conditioning as the simultaneous control of (1) temperature, (2) humidity and (3) air movement, to which are added any other features of desirable character such as (4) distribution, (5) air cleansing and (6) air deodorizing and ionizing and the like. The author of this book, Ernest F. Jones, is a well known heating engineer of many years' experience, who has made a thorough study of the theory and practice of air conditioning from the beginning of this science and has followed it step by step, keeping posted on its latest

developments. The book is published by Domestic Engineering Co., 1900 Prairie Avenue, Chicago, and costs, bound in a flexible cover, $2 a copy, postpaid.

Yates-American Machine Co. Enters Unit Heater Field

The Yates-American Machine Company of Beloit, Wis., has just announced that it has started the manufacture of heat transfer units, including unit heaters for heating purposes, condensers, evaporators and fin coils for air conditioning and refrigeration. The new branch of this company will be known as the Radiator Division, and it is headed by Roger Birdsell, who has been connected with the radiator industry for the past 10 years. Former associates of Mr. Birdsell, who have joined the Yates-American Machine Company include G. W. Foote, superintendent; W. C. Klespe, chief engineer, and L. C. Evans, research engineer.

Roger Birdsell

Mr. Birdsell was formerly for seven years vice president in charge of sales, advertising and engineering for the Perfex Corporation of Racine and Milwaukee, Wis.

Mr. Foote and Mr. Evans were also formerly connected with the Perfex Corporation of Milwaukee, Wis., while Mr. Klespe was formerly chief engineer of the Perfex Radiator Company and the Young Radiator Company, both of Racine, Wis.

James A. Walsh, Inc., Opens Air Conditioning Business in Philadelphia

James A. Walsh, Inc., has been incorporated to handle air conditioning equipment manufactured by Chrysler Motors, and has opened offices on the ground floor of the Architects Building, Seventeenth and Sansom Streets, Philadelphia. In addition to Philadelphia, this company will act as distributors for this line in southern New Jersey, eastern Pennsylvania and the State of Delaware, and dealers for this territory are now being appointed.

In addition to air conditioning equipment, James A. Walsh, Inc., will handle the heating products of Chase Brass & Copper Co., Inc., of Waterbury, Conn., and the unit heaters of Fedders Mfg. Co. of Buffalo, N. Y.

The officers of the new company are James A. Walsh, president and treasurer; Howard B. Brown, vice president, and H. B. Walsh, secretary.

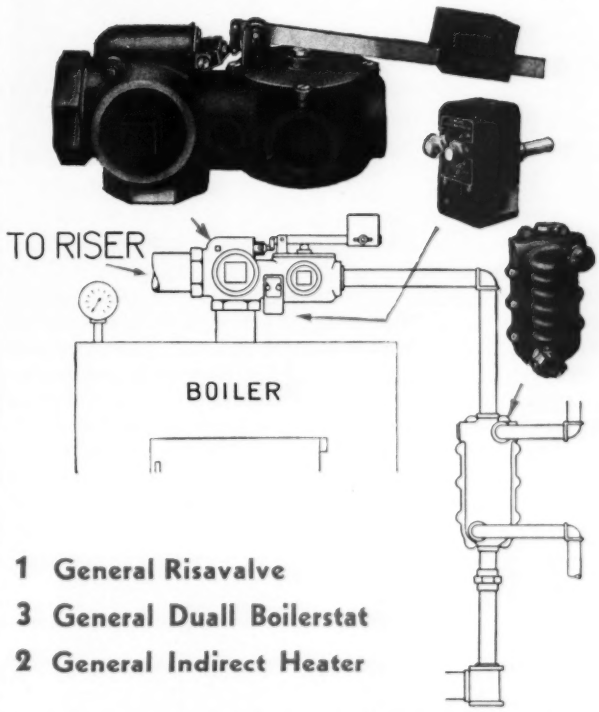
James A. Walsh was formerly Philadelphia manager of the Rome Radiation Division of Revere Copper and Brass, Incorporated, New York City.

S-K Company, Inc., Opens New Factory

The S-K Company, Inc., manufacturers of oil burners, has opened a new factory and show room at Black Horse Pike and Main Street, West Collingswood Heights, N. J.

3-G

THE NEW GENERAL COMBINATION FOR HOT WATER CONTROL



1 General Risavalve
3 General Duall Boilerstat
2 General Indirect Heater

On every new hot water heating installation and on thousands of existing hot water heaters you can install this 3-unit General system with excellent results—and at a nice profit.

1 The New Risavalve is the last word in domestic hot water control—adjustable, silent, operated without motors, without any cost whatsoever!

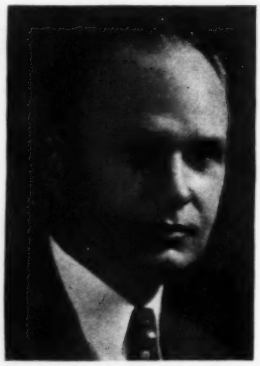
2 Duall boilerstat is the 2 in 1 answer to boiler and tap water temperature regulation.

3 General Indirect Heaters deliver the maximum amount of hot water. Their advanced design promotes operating economy and eliminates many installation and service problems.

Get all the details of the 3-G Franchise—it's a sales-maker in these days when indirect hot water heating is claiming so much favorable attention.

GENERAL FITTINGS CO.
100 BAKER ST. PROVIDENCE, R. I.

Business Personals—



V. G. Vaughan

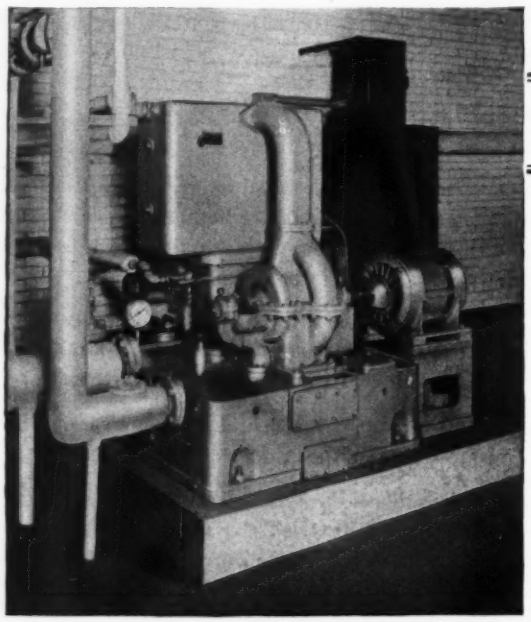
VICTOR G. VAUGHAN, formerly manager of the Appliance Engineering Division of the Westinghouse Electric & Manufacturing Company of East Pittsburgh, Pa., has been placed in charge of operations of Spencer Thermostat Company of Attleboro, Mass., and will specialize on development of automatic temperature and humidity controls. Mr. Vaughan was born in San Antonio, Tex., in 1894, secured his early education in the schools of that city and later attended the Georgia School of Technology, graduating in 1915. College finished, Mr. Vaughan secured a position with Westinghouse Electric & Mfg. Co., where he remained until the Great War called him in 1917. As a lieutenant he saw service in France. After the war he became engineer for the Magnolia Petroleum Company, but he was soon recalled by Westinghouse as appliance engineer. In 1927 he was promoted to the management of the appliance department, and three years later the Safety Switch Engineering was placed under his control. His last task with Westinghouse was in connection with the completion of the "House of Tomorrow" at Mansfield, Ohio.

W. R. McLaughlin

W. R. MCLAUGHLIN has joined the sales organization of the Pittsburgh Equitable Meter Company of Pittsburgh, Pa., and its subsidiaries, the Merco Nordstrom Valve Company, also of Pittsburgh. Mr. McLaughlin has had fifteen years' experience in distribution and engineering work. He will make his headquarters at Dallas, Tex.

RALPH E. CRESSY has been appointed sales manager for a new division of unit heaters, which are manufactured by the Fedders Manufacturing Company of Buffalo, N. Y.

R. D. LOGEE, vice president and divisional sales manager at Cleveland, Ohio, for the Anchor Post Fence Company of Baltimore, Md., has been transferred to this company's main office in Baltimore as national sales manager to succeed the late George W. Forster. H. A. JARRELL has been appointed manager of the Cleveland branch office, and FRANK P. HARBIN has been made general sales manager of the Fluid Heat Division with T. H. SMOOT as chief engineer.



AGAIN IT IS TRUE—

In modern buildings where the vacuum return line steam heating system is used, the chances are that the heart of the system is an AMES VACUUM HEATING PUMP.

The illustration shows an Ames Type F Duplex Unit installed in the beautiful new Bronx County Court House, New York City. A judicial choice, we believe, for the new home of the county judiciary.

AMES PUMP COMPANY, INC.
30 CHURCH STREET • NEW YORK, N. Y.
Manufacturers of vacuum heating, condensate, centrifugal pumps, and fuel oil pumping-heating units
Division of American Locomotive Company
Representatives in all principal cities. Products manufactured and sold in Canada by Montreal Locomotive Works, Ltd.

NRA WE DO OUR PART

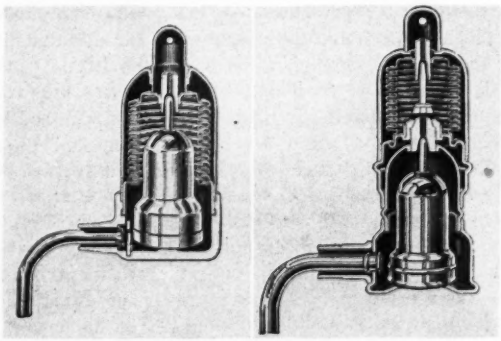
Write for Bulletin 701

Products FOR Dealers

This section gives a report of the latest news of selected automatic heat and air conditioning products. Sales helps such as these work to open up new and increasing markets for A. H. and A. C. Dealers.

Two New Valves Announced

The accompanying illustration shows two new valves of the vacuum type. The one at the left is described as representing a junior line whereas the one at the right shows a master line. The right hand valve, or master line is described as actually containing two valves in the same shell which function independently of each other. This vacuum valve operates on the principle of the bellows type for one pipe steam radiators. Its purpose is to insure quicker venting and more complete vacuumizing of the system. The venting section shown in the lower part of the right hand illustration first vents all of the air from the system. It closes when the radiator fills with steam. When the pressure at the boiler recedes, the vacuum bellows operate to push downward by outside atmospheric pressure, thus sealing the valve against the return of air. The purpose of maintaining a

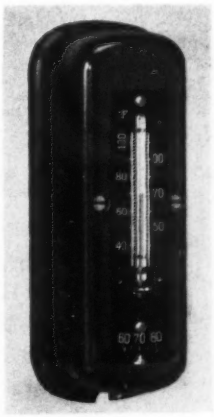


high vacuum is to permit the free flow of hot vapors through the system and to keep the radiators hot after the fire is banked.

The valve shown at the left also is of the bellows type but is smaller in size than the valve just described. The operating principle is the same in that it is designed both to eliminate and to keep out the air in radiators. When the volatile liquid inside the float is heated as the steam fills the radiator, the diaphragm on the base of the float expands, thus forcing the float upward and closing the valve. As the system cools and the steam recedes, the atmospheric pressure forces the bellows down against the float pin so as to prevent the return of air with the consequent maintenance of a vacuum in the system. Each of the vacuum valves described here is finished in chromium plating and is equipped with a nickel silver seating pin to prevent sticking. W. A. Russell & Company, Grand Central Terminal Bldg., New York, N. Y., is the manufacturer.

Control System for Residence Heating

The accompanying illustration shows the thermostat portion of a control system just recently announced. This system uses this wall thermostat with the addition of a second thermostat described as being of the variable limit type and this second thermostat is made to be attached to a radiator or inserted in a warm air pipe if it is used with a warm air heating system. The limiting action of this second thermostat is made to depend upon the outside weather conditions, the idea being that when the weather is cold, it will let the radiators get hot and when the weather is mild, automatically it prevents them from getting any more than just warm enough. This variable limit thermostat is so constructed as to be

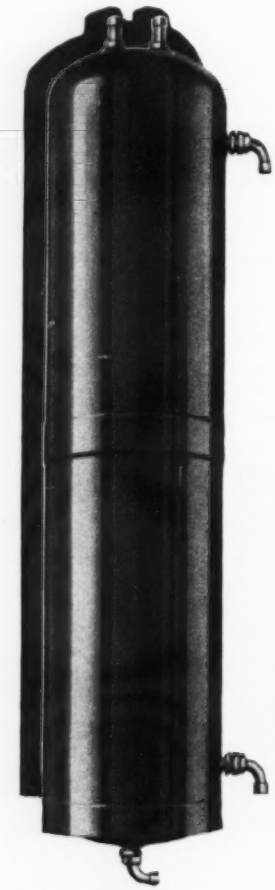


sensitive to a change in temperature of the radiator regardless of whether such a change comes when the radiator is hot, or only warm, or cold. Furthermore, its action is influenced by changes in weather because it recognizes such changes by their effect on the house temperature and automatically adjusts the radiator temperature to compensate for them. The variable limit thermostat is designed to act as a curb by turning the steam off after the radiators warm up slightly and by letting the heat in the steam be distributed in the house before admitting more. This provides for shorter and more fre-

STRENGTH—built to meet the standard 250, 300 and 350 lb. tests.

ENDURANCE—copper can show the longest *actual* life of any metal used for range boilers.

APPEARANCE—rich copper color finished with a glossy sheen. No bumpy rivets.



THE Brown & Brothers Seamless Drawn Copper Range Boiler can hold its own with any range boiler as to strength. It meets all the trade tests 100%.

And this boiler has been on the market since 1876, *and as some of the old-timers are still in service*, it can justly claim the longest *actual* life of any range boiler.

The rich copper tone with its glossy sheen will harmonize with any decoration.

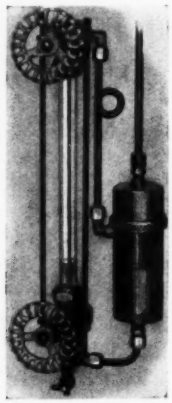
Your customer has every reason to buy the Brown & Brothers Range Boiler.

E. B. BADGER & SONS CO.

75 PITTS STREET BOSTON

271 MADISON AVE. NEW YORK, N. Y.

quent heating periods. The system is made to be applied to any type of heating system in any kind of house. Where automatic controls already are in use, the control system units simply are added to the existing equipment. Barber-Colman Company, of Rockford, Ill., is the manufacturer.



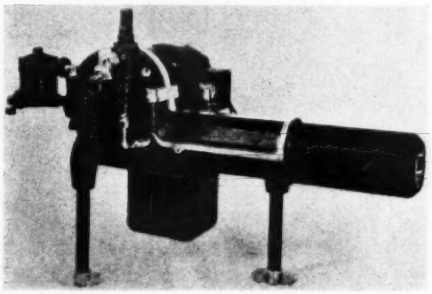
Improvement Announced for Water Feeder

The water feeder shown here just recently has had improvements built into it. It is rated as having a capacity of from 1 to 2 qts. of water per minute depending upon the water pressure. It has been made light in weight and mechanically simple with the idea that it can be installed far enough away from the heating unit it feeds to avoid corrosion. All of the working parts, including the screen, are made so as to be removed without lowering the water level in the heating boiler or appliance to which it is attached. A removable rubber seated valve designed to be self-closing and heat-resisting is located in the upper shell and is completely surrounded by water for the purpose of keeping the valve plunger cooled and for avoiding corrosive tendencies. The valve is operated by compound levers attached to a float which has its soldered seam above the water line. The valve core and stem are made replaceable. This safety feeder is made to be connected to a boiler or other appliance with ¼ in. copper tubing as illustrated in the accompanying view. Another feature of this feeder is that it can be installed to maintain a thin sheet of water in a warm air furnace humidifier, a humidifying pan on a radiator, a stationary humidifier, an air conditioning unit or similar devices. This feeder is designed so as not to flood a heating boiler during periods of flash firing. The manufacturer is Maid-O'-Mist, Inc., 43 E. Ohio Street, Chicago, Ill.

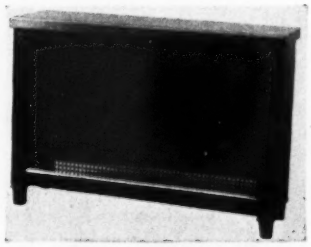
New Oil Burner

The announcement of the unit shown in the accompanying illustration being placed on the market marks the entrance of another company into the oil burner field. The line of burners represented consists of three models which are designed to be capable of answering any demand of automatic oil heat from the smallest

home to the largest industrial plant. The burner illustrated here has been placed on the market for domestic requirements. It has a split phase, long hour 1/10 h.p. motor for use on 110 volt, 60 cycle, alternating current. It is rated for 1750 r.p.m., maximum starting torque—15 amps., running, 2.8 amps, bronze sleeve bearing packed with long marine wool. Fan is fabricated of light aluminum. It is described as being balanced statically, and is mounted directly on the motor shaft. The pump is of the rotary type and is rated for a maximum capacity of 20 gallons per hour, a minimum of 25 in. of vacuum, mechanical seal, and is directly connected to the fan hub by a flexible spring drive coupling. The strainers are made of 80 mesh monel metal with 17 sq.

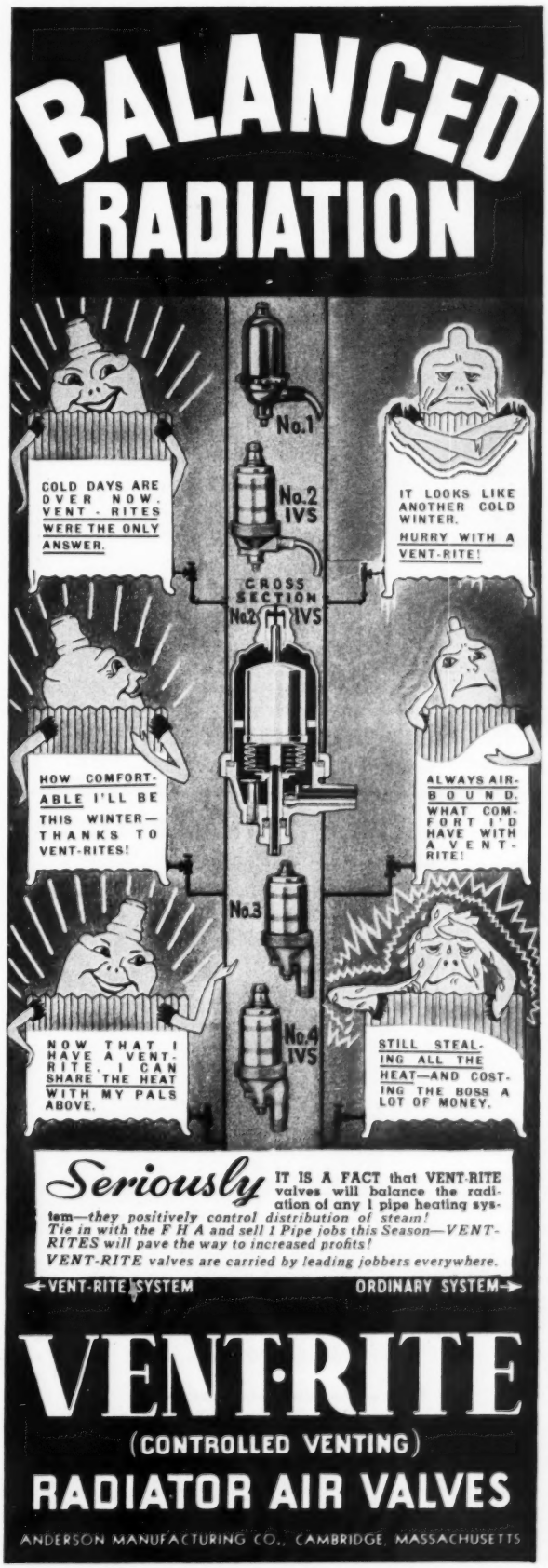


in. of straining area designed to be cleaned easily. A second strainer is incorporated in the nozzle. The ignition system is electric and consists of a two-pole transformer designed for heavy duty, with minimum temperature rise, low input and shielded secondaries. Also, it contains a built-in radio interference eliminator, intermittent spark, and enclosed short high tension leads. Controls consist of a low voltage room thermostat, a combustion safety device, and a boiler or limit control. Norge Corporation, located at 670 E. Woodbridge Ave., Detroit, Mich., is the manufacturer.

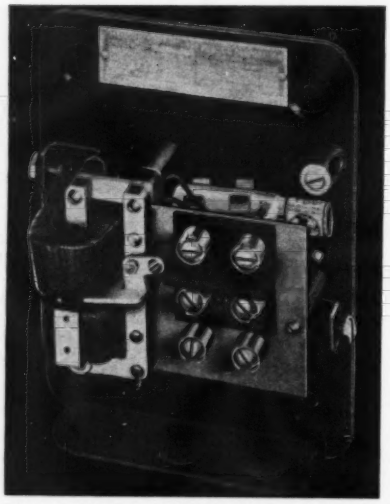


Improvement Announced for Radiator Cabinets

The line of radiator cabinets represented by the accompanying illustration include various improvements according to an announcement just recently made. Among these are listed economies which have been effected in its construction and manufacture for the purpose of adapting it to present day, and wider, markets. Other features of construction make these covers applicable to a wide variety of special installations. Humidifying provisions are contained in the upper section of the cabinet. This equipment is made by Slyker, Gary, Ind.


BALANCED RADIATION
No.1
No.2 IVS
CROSS SECTION No.2 IVS
No.3
No.4 IVS
COLD DAYS ARE OVER NOW. VENT-RITES WERE THE ONLY ANSWER.
IT LOOKS LIKE ANOTHER COLD WINTER. HURRY WITH A VENT-RITE!
HOW COMFORTABLE I'LL BE THIS WINTER—THANKS TO VENT-RITES!
ALWAYS AIR-BOUND. WHAT COMFORT I'D HAVE WITH A VENT-RITE!
NOW THAT I HAVE A VENT-RITE, I CAN SHARE THE HEAT WITH MY PALS ABOVE.
STILL STEALING ALL THE HEAT—AND COSTING THE BOSS A LOT OF MONEY.
Seriously
IT IS A FACT that VENT-RITE valves will balance the radiation of any 1 pipe heating system—they positively control distribution of steam! Tie in with the F H A and sell 1 Pipe jobs this Season—VENT-RITES will pave the way to increased profits! VENT-RITE valves are carried by leading jobbers everywhere.
←VENT-RITE SYSTEM ORDINARY SYSTEM→
VENT-RITE
(CONTROLLED VENTING)
RADIATOR AIR VALVES
ANDERSON MANUFACTURING CO., CAMBRIDGE, MASSACHUSETTS

MERCOID
TRANSFORMER - RELAY



This is not a combination of a separate relay unit and transformer, but a true transformer-relay in which the transformer also functions as a repulsion relay. Its unusual construction and performance makes it the ideal low voltage relay for automatic heating and air conditioning equipment, or wherever dependable remote control is required.

Write for Bulletin No. 110

Mercoid Controls Are Distributed and Stocked in Many Cities By The Graybar Electric Co., Inc.

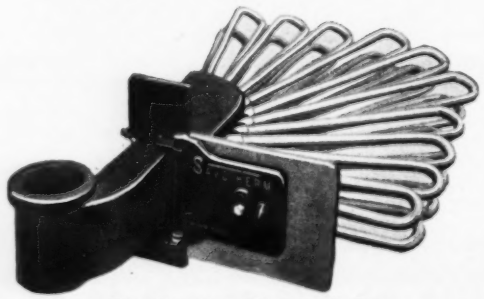
THE MERCOID CORPORATION
4221 Belmont Avenue -:- Chicago, Illinois

"A BOILER WITHIN A BOILER"

Readily installed in automatically fired boilers using oil, gas, or anthracite coal.

MORE —Capacity & Efficiency
—Speed & Pep
—Comfort & Satisfaction

LESS —Heat Up the Chimney
—Temperature Fluctuations
—Fuel Consumed.

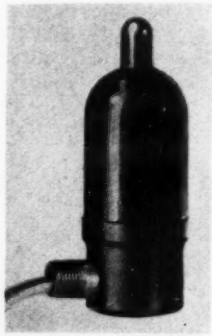


Attractive proposition to dealers.

SAVOTHERM
DIVISION
NEW JERSEY STOKER CORPORATION
1246 Broad St. Newark, N. J.

Low Pressure Air Valve

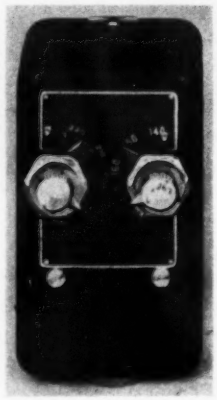
The air valve shown here just recently has been placed on the market as an extension of a line of air and vacuum valves for radiators. It is for use on low pressure steam systems. This valve is of all metal construction, it has a thermostatic float and siphon and is pro-



vided with a nickel case. It is furnished in four models, one being provided with an angle connection and three models with straight shanks. Of these models, one has a ⅛ in. straight shank connection; another has a ¼ in. straight shank connection; another has a ⅜ in. straight shank connection with a female thread and still another has a ¾ in. straight shank male thread. The American Radiator Company at 40 W. 40th Street, New York, N. Y., is the manufacturer.

New Boiler Control on the Market

Here is a piece of equipment which just recently has been announced as a single instrument for the purpose of controlling house heating and domestic water heating in connection with steam, hot water, vapor and vacuum



systems. In addition, it is designed to prevent the serious overheating of the boiler to which it is connected due to low water and the like. Other features listed for it are that it prevents the fire box or hearth from becoming oil soaked as a result of the burner turning on and

off too frequently; it eliminates false starts due to building vibrations and jars; it keeps the oil in the preheater warm on automatic and semi-automatic operation with No. 5 and No. 6 oils; it can be used for industrial installations on processes when one temperature must be maintained during a given period and increased or decreased during another period as in the case of baking, rubber curing, and canning; and it maintains a minimum temperature in curing vats, drying rooms, processing bins and the like when the boiler is thermostatically controlled for heat. Also it is designed so that it can be connected in any position. General Fittings Company, located at 100 Baker Street, Providence, R. I., is the manufacturer.

Amplex Division Moves Air Conditioning Factory to Larger Quarters

Increase in business has made it necessary for the Amplex Division of Chrysler Motors to transfer its air conditioning factory headquarters to an eight-story building at 8021 Conant Road, Detroit, Mich., according

The new headquarters for the Amplex Division of Chrysler Motors, where air conditioning equipment will be manufactured and assembled

to announcement just issued by President E. S. Chapman. The new building is now used for the manufacture and assembly of 37 different types of air conditioning equipment. In addition, this building also will house the manufacturing operations of industrial engines, vibration dampers, engine mountings, etc., which the Amplex Division is marketing.

The air conditioning equipment of the Amplex Division will be marketed by Airtemp Incorporated, with headquarters in New York City, of which Walter P. Chrysler, Jr., is president.

IT IS CREATING A SENSATION

DESIGNED from bottom to top to be used with oil burners.

A FLASH BOILER STABILIZED—

20% of water boiling generates steam quickly.

80% stabilized the action of the quick steaming generators, holding heat the longest possible time.

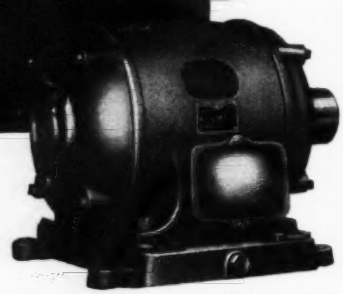
A complete unit enclosing boiler and large tank connecting to copper coil for domestic hot water.

Oil burner of any make fits into ample space.

Send for Full Information Today

WATERFILM BOILERS INC
154 OGDEN AVE. JERSEY CITY, N.J.

MOTORS *for* STOKERS



Century 1 Horsepower Type SC Squirrel Cage Induction Polyphase Sleeve Bearing Motor.

Stokers, Oil Burners, Pumps, Air Conditioning Systems, Blowers, Fans, Ventilators — these and similar types of electrically driven Building Equipment powered by Century Motors are giving conspicuous satisfaction under all kinds of severe operating conditions . . . There is a Century Motor particularly suited to each application — Single Phase, Polyphase, Direct Current — Splash Proof, Multispeed, Gear, Totally Enclosed, Totally Enclosed Fan Cooled, Explosion Proof, and Standard Types, in horizontal, cushion, flange, vertical or special mountings — 1/250 to 600 horse power . . . . Consult Century Engineers.

CENTURY ELECTRIC COMPANY
1806 Pine Street • • • St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century MOTORS

An exhibit in the show windows of Lawrie Bros. at Erie, Pa., which recently attracted well-deserved attention

County Fair—

(Continued from Page 79)

merchandise displayed in their booths. The idea was that they offered to sell to the highest bidder this merchandise. In order to make a bid, the bidder was required to fill out the form shown in Fig. 2. The value of this as a prospect record is recognized readily. The

CUSTOMER BID FORM

Name .....
Address .....
City .....
Bid on Chamber Range - - - - - $.....
Which one .....
Bid on Pyrofax equipment - - - - $.....
Which one .....
Bid on Williams Oil-O-Matic Oil Burner - $.....
Cash payment - - - - - - - - $.....
How much can you pay monthly? - - $.....

Fig. 2—Here is the bid form which was used in auctioning the equipment contained in the displays. The value of this as a prospect card is recognized readily

reverse side of this form contained the following instructions:

"Any person bidding on appliances now on display in Blank and Bachmann's booth must give name, address and what appliance he is bidding on. State booth, color of range, and type of range. State cash payment that you can make and how much you can pay monthly. Sale will go to highest bidder offering the largest down payment. This applies only to merchandise on display as noted."

Mr. Bachmann summarized the results of this sales activity by saying, "We sold one oil burner and boiler combination the first day of the fair. As for gas ranges, we made two outright sales and obtained a large number of prospects. Also, we sold one installation of gas equipment of the metal container type and obtained a good many prospects for this equipment to work on during the next six months. We feel that our investment of time and money at this fair has been well spent because we have been busy ever since."

The Liner-Atwill Company of 4 Olive Street, Hartford, Conn., has added an air conditioning department to its business.

Alt—

(Continued from Page 82)

Btu. per person per hour at 70 deg. Fahr. down to about 50 Btu. per person per hour at 95 deg. Fahr. while the latent heat of the moisture or vapor given off ranges from 100 Btu. per person per hour at 70 deg. Fahr. up to 340 Btu. per person per hour at 95 deg. Fahr. The increase in moisture, of course, is the result of people

TABLE THREE
Average Body Heat for Persons at Rest

Temperature (Dry Bulb) Deg. Fahr.	Sensible Heat from Body Btu. per Hr.	Latent Heat from Body Btu. per Hr.	Total Heat from Body Btu. per Hr.
50	438	70	508
55	410	70	480
60	350	70	420
65	338	75	413
70	300	100	400
75	267	133	400
80	215	175	390
85	165	225	390
90	115	275	390
95	50	340	390

(Above table developed from curves of tests given in A. S. H. V. E. 1933 Guide.)

sweating at the higher temperatures while the decrease in the sensible heat is due to the temperature of the atmosphere approaching the temperature of the body. When the atmosphere and the body are at the same temperature all radiation will cease if it is assumed that the surrounding walls and objects are at the same temperature.

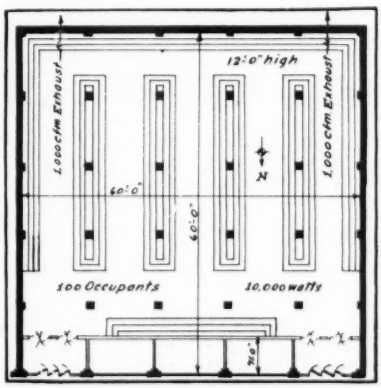
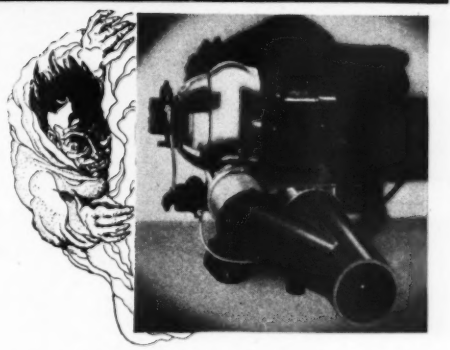


Fig. 4—This is a plan drawing of the merchandise shop to be air conditioned in this problem. Note ventilating system already is installed

Thus in all air conditioning calculations involving a large number of persons the sensible body heat must be treated in exactly the same manner as the heat coming in through the walls, from the sun, or generated in the room by electric lights, while the latent heat must be compensated for by having the entering air at a lower humidity than desired in the room so that when the body moisture is added the humidity will then, and only then, be correct. The removal of this added moisture or latent heat will produce an added refrigeration load when this same moisture is removed from the recirculated air in the washer, as will be explained more in later chapters.

FOLLOW THE COALITOSIS TRAIL TO PROFIT!



The New Wayne Coalitosis Campaign will put your sales "Over the Top"

IT *shocks buyers into action!* Unusual sales strategy assures more successful interviews, more quick sales. Write today for information about this powerful sales campaign that will increase your prestige and profit. *Do it now!*

WAYNE OIL BURNER CORP.
602 Glasgow Ave., Fort Wayne, Indiana

WAYNE
The World's Finest Oil Burner

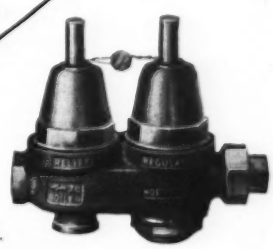
Dependable Service!

CASH-ACME
IT'S AUTOMATIC

Cash-Acme Automatic Pressure Controls Give Satisfaction

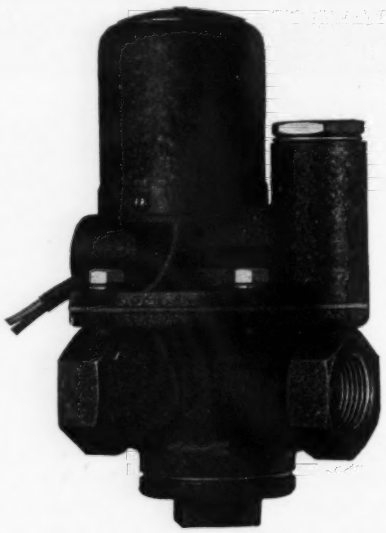
They operate equally well on coal, gas or oil fired boilers—There is no finer hot water heating control built than the new Cash-Acme Unit. Ask your jobber for information or write us for Bulletin DI.

Types CA and CB



Designed for long and trouble-free service.

A.W. Cash Valve Mfg. Corporation
600 NORTH WATER STREET
DECATUR, ILLINOIS



A NEW WATER VALVE

Model 66. Based upon the by-pass principle. Low power consumption—extremely fast and accurate action. Construction of brass and non-ferrous material. Write for Bulletin No. 406.

AUTOMATIC PRODUCTS CO.
121 N. Broadway Milwaukee, Wis.

CUT WITH A UNISHEAR

INSIDE cuts, outside cuts—straight lines, curves or angles—they are all easy with a Stanley "Mighty Midget" Unishear. With a speed up to 15 feet per minute, a capacity of 18 U. S. gauge hot rolled steel, a weight of only 7 lbs. there isn't anything to compare with a Stanley Unishear for cutting sheet materials.

Other models have capacities up to ¼" boiler plate.

SPECIAL OFFER

We want you to have a practical demonstration of what this tool will do. We will be glad to arrange such a demonstration with no obligation to you. Descriptive catalog on request.

THE STANLEY ELECTRIC TOOL COMPANY
111 Elm Street
New Britain, Conn.

For Reducing Costs . . .
STANLEY UNISHEAR

PROBLEM

In the large shop shown in Fig. 4 it is desired to install a cooling system taking into consideration that the ventilation is fairly adequate being taken care of by two exhausts in the rear each of 1,000 c.f.m., capacity and discharging above the roof. What would be one good method of solution?

SOLUTION

Owing to the ventilation already being provided for it will be endeavored to use unit conditioners recirculating 100 per cent and depend on the ventilating unit in the rear to draw in sufficient fresh air for the requirements of the occupants. Investigation shows that the walls are 12 in., brick, plastered, with a factor of 0.34 multiplied by 15 degrees or 5.1 Btu. say 5 Btu.; ceiling is a 6 in., concrete slab with a wood floor above and no hung ceiling having a factor of 0.37 multiplied by 15 degrees or 5.55 Btu. say 6 Btu.; the floor is of the same construction; the show window walls are 4 in., terra cotta plastered two sides with a factor of 0.45 multiplied by 15 degrees Fahr. for 6.75 Btu.; say 7 Btu., the doors, 1.1 multiplied by 15 degrees Fahr. give 1.65 Btu., say 1.7 Btu. This makes the wall, and glass transmission as follows:

North Wall
Gross wall...720 sq. ft.
8 doors.....104 sq. ft. × 1.7 or 1,768 Btu.
Net wall.....616 sq. ft. × 7. or 4,312 Btu.
6,080 Btu.

West Wall
Gross wall...636 sq. ft.
Glass 000
Net wall.....636 sq. ft. × 5. or 3,180 Btu.
3,180 Btu.

East Wall
Gross wall...636 sq. ft.
Glass 000
Net wall.....636 sq. ft. × 5. or 3,180 Btu.
3,180 Btu.

South Wall
Gross wall...720 sq. ft.
Glass 000
Net wall.....720 sq. ft. × 5. or 3,600 Btu.
3,600 Btu.

Floor .....3,180 × 6 Btu. or 19,080 Btu.
Ceiling .....3,180 × 6 Btu. or 19,080 Btu.
38,160 Btu.

Total for walls, glass, floor and ceiling.....54,200 Btu.
Electric lights, 10,000 watts × 3.4..34,000 Btu.
Body heat, 100 × 215 Btu.....21,500 Btu.
Sun Effect ..... none
Other sources of heat..... none
55,500 Btu.

Total of all sensible heat (excepting infiltration) .....109,700 Btu.
Infiltration: 2,000 c.f.m. multiplied by 60 / 13.34 or 9,000 lbs., (almost) say 9,100 lb., an hour for safety, and this

must be cooled from outside temperature of 95 deg. Fahr. to inside temperature of 80 deg. Fahr. requiring the removal of

9,100 lb., × (95 — 80) × 0.24 Btu. or 32,670 Btu.

Dehumidifying

100 persons × 175 Btu. or.....17,500 Btu.

Outside Air, 9,100 lb., (256.3 gr. × 50 per cent — 155.8 gr. × 50 per cent)

or

9,100 lb., (128 gr. — 78 gr.)

or

9,100 lb., × 50 gr., or 455,000 grains.

and the number of Btu. required to remove 455,000 grains of moisture per hour is

455,000 / 7,000 Btu. or 65,000 Btu.

Summary

This gives a recapitulation of the following:

Cooling. Walls, Glass, etc	109,700 Btu.
Outside Air	32,670 Btu.
Total of all Sensible heat	142,370 Btu.
Dehumidifying	
Moisture from Occupants	17,500 Btu.
Outside Air	65,000 Btu.
Total of all Latent Heat	82,500 Btu.
Grand Total of All Heat Removed	224,870 Btu.

Tonnage Required, 224,870 / 12,000 or 18.7 tons.

ARRANGEMENT OF UNITS IN LARGE SHOP

In the arrangement of the units around the shop consideration must be given to available spaces and an adjustment of the size of unit to meet the probable load

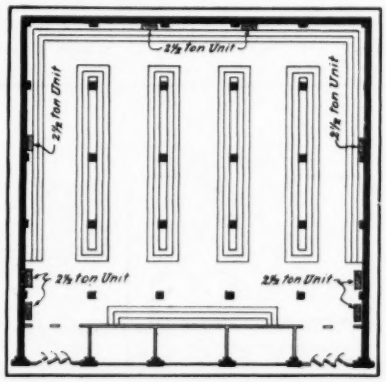
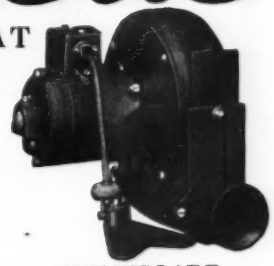


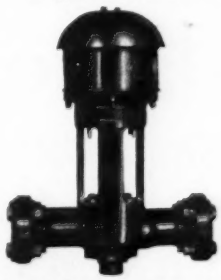
Fig. 5—The locations of the air conditioning units are indicated in this floor plan. Each unit is sized at 2½ tons capacity

which it proportionately ought to carry. Inspection of the calculations indicate that the load for cooling and dehumidifying the outside air coming in through the doors amounts to about 98,000 Btu. per hr., which is equivalent to over 8 tons of refrigeration and adding something for the lights and people in the same section shows that about 10 tons of cooling will be required in the front of the shop. This will be supplied by setting two 2½ ton units near each door making 5 tons on each side of the shop at the front. If it is assumed that with a 10 per cent allowance for safety the total tonnage to

Over A MILLION
EXCELSO
QUALITY WATER HEATERS
HAVE BEEN SOLD
Ample Proof of Quality and Service
EXCELSO PRODUCTS CORP.
57 Clyde Avenue Buffalo, N. Y.
or
Ask Your Jobber

Janette
AUTOMATIC HEAT EQUIPMENT





THE HYDROLATOR
Hydrolator forced circulation brings the home quickly to a comfortable temperature with hot-water heating systems. Lowers fuel costs. Overcomes difficulties with sluggish circulation. Send for Bulletin 232-H.

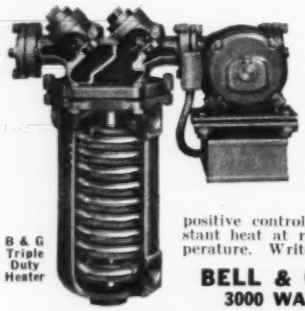
MULTIBLADE BLOWER
A recent addition to the old reliable line of Janette Motorized Blowers. Specially adapted for furnaces and boilers using cheap grades of coal. Permits a possible saving up to 50 per cent of fuel costs. Can be operated manually or by automatic control. In use only when draft is required. No special wiring required. Uses about the same amount of current as an ordinary incandescent lamp. An excellent companion to the Janette Hydrolator when used with hot water heating systems. Send for Bulletin 24-31.

FLANGE TYPE MOTORS—STEEL WHEELS
OIL PUMP COUPLINGS—TRANSFER PUMPS
Janette Manufacturing Company
556 WEST MONROE ST. CHICAGO, ILLINOIS

FREE DOMESTIC HOT WATER

B & G TRIPLE DUTY INDIRECT HEATER FURNISHES DOMESTIC HOT WATER WITHOUT INCREASING FUEL CONSUMPTION OF HEATING BOILER

	1933 *Cost of Gas for Cooking and Domestic Hot Water*	1934 *Cost of Gas for Cooking Alone*
December	$13.17	$3.40
January	14.21	3.72
February	11.07	2.74
March	12.12	3.07
April	11.34	2.40
	$61.91	$15.33



B & G Triple Duty Heater

By installing a B & G Triple Duty System, the owner reporting the above figures eliminated a separately fired water heater —cutting his gas bill $46.58 in five months. *Yet fuel consumption of the heating boiler was not increased!* Simply because a B & G Triple Duty Unit so improves the efficiency of a hot water heating system that both heat and domestic hot water are furnished for the same *or less* than the usual cost of heat alone. Forced circulation, plus positive control of boiler water flow assure instant heat at radiators and uniform room temperature. Write for full information.

BELL & GOSSETT COMPANY
3000 WALLACE ST., CHICAGO

STEAM IN 3 TO 7 MINUTES!

Investigate

The NEW Master Kraft

BOILER BURNERS

Cast Iron and Steel

New principle revolutionizes boiler-burner efficiency. Generates steam in 3 to 7 mintues. Stores upwards of 350 lbs. of feed water at high temperature. Slow velocity of gases transmits greatest heat from fuel oil. Cuts fuel bills by large percentages. Write for full data on Master Kraft Oil Burners and Boiler Burner Units.

HARVEY - WHIPPLE INCORPORATED
1157 Emery St., Springfield, Mass.

be installed should be about 20 tons, after the four units in front of the shop are deducted this leaves

20 tons — (4 × 2½ tons) or 10 tons

to be distributed around the balance of the shop.

If one unit is placed on each side wall about halfway back and two units are placed on the back wall with the load divided about equally on the four, the capacity of each unit should be

10 tons / 4 or 2½ tons each.

This is a very good size, as it corresponds with the size of the units already tentatively selected in the front and makes all of the units in the shop identical.

The location of the four units in the portion of the shop back of the doors will necessitate the removal of the shelving back of the counter for the space required by the unit or else the shelving can be built around the unit with a discharge duct run up through the back of the shelving to a point above the top of the shelves beyond which the air may be allowed to mushroom out at will. It probably will be advisable to provide grilles under the counters to draw air off the floor of the main shop but this may prove to be unnecessary, as the air conditions below the counter level are not as exacting as at the breathing line.

Electricity—

(Continued from Page 84)

resistance is required. Of all types of motor, it is the most complicated, although it is extensively used."

"I can't see that it makes any difference to me whether a D. C. motor is shunt, series or compound, as long as I connect it properly," said Mr. Lucas, the dealer.

"Yes it is up to the designer of your equipment to use the right type of motor, but it is a good idea to understand the various types if you have to wire up replacement motors. If you receive a motor which has the

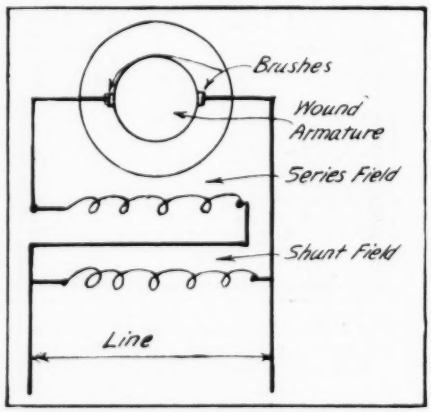


Fig. 5—This diagram shows the winding for a compound D.C. motor

field winding separate from the armature windings and you want to connect it up as a shunt motor, you could follow Fig. 3. If it is a series or compound motor follow Fig. 4 or 5. If it is a series motor, never run it without a load.

"What do you say, shall we leave the discussion of alternating current motors for another evening?"

(To be continued)

Trouble—

(Continued from Page 76)

tained. Then the burner should be dropped to the low rate and the pressure gauges again watched to see if the differential between the readings increases.

If there is a greater difference between the readings of the two gauges when running on the low rate than there is in running on the high rate, it proves conclusively that the induced vacuum in the system is the cause of the trouble. The water line should be watched closely during this experiment, and, if the water line raises materially during the time running on the high rate, it is a fictitious water line and probably is caused by dirty

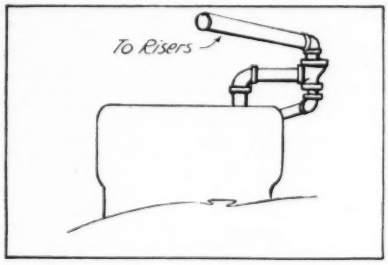


Fig. 5—The runout is connected to the boiler tapping through almost a close nipple

water. If it drops back to the original amount, or level, when the system was cold it proves that no water is leaving the boiler and that no water is being held back in the system.

From the results of this experiment it should be possible to diagnose the trouble as either caused by

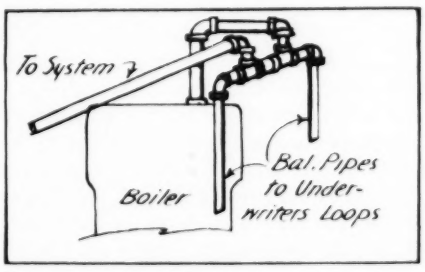


Fig. 6—We believe this would be the more satisfactory method of connecting the steam runout

vacuum in the system (when reducing to the low rate) or as caused by an untrue water line (when running on the high rate) which leads one to think that the water has left the boiler when the high rate changes to the low rate. If it is a matter of vacuum in the system, this may be counteracted by raising the height of the loop as previously explained while, if the trouble is a fictitious water line, cleaning out the boiler and changing the water at more or less frequent intervals will gradually eliminate

BARBER-COLMAN

COMPENSATED CONTROL

A Step Ahead!

For house heat control, this item is a *step in advance* of anything of its kind. A new unit—the Variable-Limit Thermostat—supplements the Room Thermostat and acts on *changes* in temperature of the radiators (or ducts) rather than at fixed periods. The control compensates automatically for all changes of heat loss. "COMPENSATED CONTROL" will make good money for many reliable heating dealers this winter—don't miss it!

Actuated by TEMPERATURE . . . *not Time*

Send for Literature Today!

BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS

No. C-38

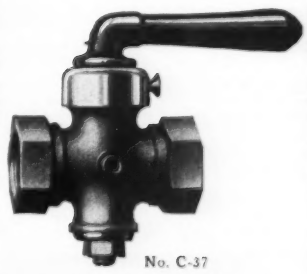
Cap Pattern

Extra Grade, Adjustable Lever and Tee Handle Ground Key

Stops & Wastes

Kitson makes a full line of GROUND KEY GAS STOPS; COMPRESSION STOPS AND WASTES; BOILER DRAW-OFFS — and the well known line of Lovekin "Safety" Valves. Literature and prices upon request.

Insist upon the name "Kitson."

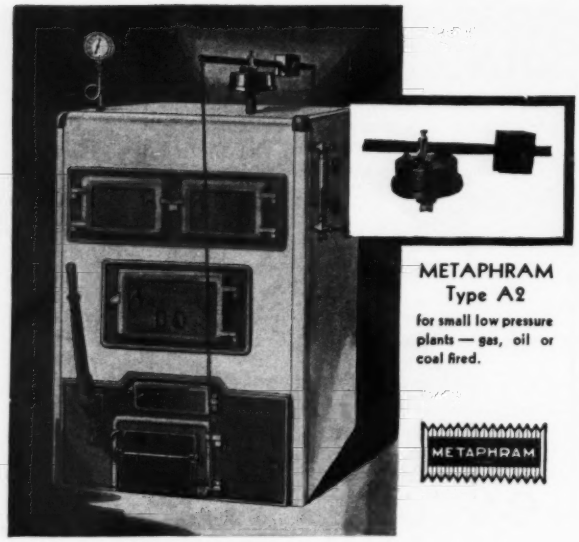


No. C-37

For Sale by Wholesalers and Jobbers

KITSON CO.
WESTMORELAND & STOKLEY STS.
PHILADELPHIA PA.

"Since 1897"



METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

The B & J Trap Has a Feature You've Always Wanted

In addition to saving steam and cutting fuel bills, the new B & J thermostatic trap has an exclusive feature that cuts unprofitable service.

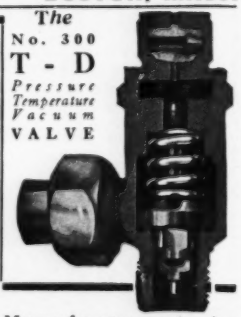
The thermostatic bellows are enclosed in a cage that carries its own seat and is a complete operating unit in itself that is locked in adjustment at the factory under actual working conditions. To replace the bellows, unscrew the trap cover, lift out the cage unit and drop a new one in. No fuss, no bother, no special tools. Unskilled labor can do it and the trap is returned to its original efficiency. Write for descriptive Bulletin.

BARNES & JONES, *Incorporated*
502 BROOKSIDE AVE. BOSTON, MASS.

SELL PEACE OF MIND

•SELL T-D Valves and you sell peace of mind . . . sell peace of mind and you go a long way toward developing good will and prestige among your customers. T-D Valves afford positive protection—for their families and for their property—against boiler hazards such as bursting, explosion and collapse. Recommend T-D Valves for every boiler installation. Details upon request.

The
No. 300
T - D
Pressure
Temperature
Vacuum
VALVE



Manufactured by
T-D SPECIALTY CORP.
300 Rutherford Ave.
BOSTON, MASS.

the difficulty. In all probability whatever does the trick in one case can be applied with equally effective results in the other.

The most successful trouble shooters in steam heating work usually do not go into a job and say, "Do this and everything will be all right." This is especially true if the difficulty has some more or less obscure cause. The first thing to do is to find the cause of the difficulty and then to develop the cheapest satisfactory method of eliminating, or counteracting, the cause.

For example, if a system does not heat properly there are several things which might be the matter; the boiler

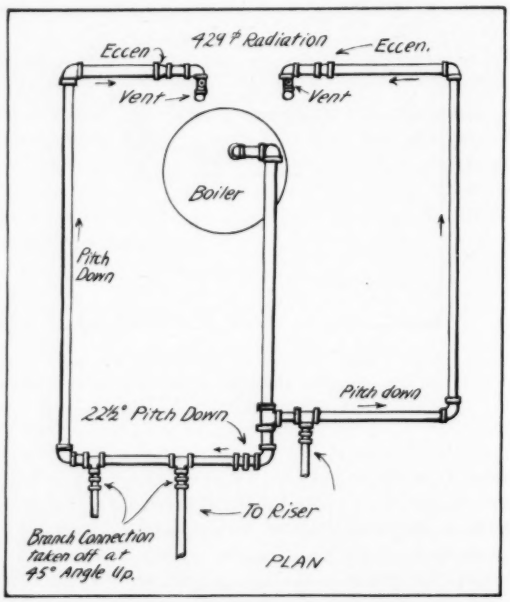


Fig. 7—The use of eccentric reducers at the ends of the steam mains is not as good practice as carrying the returns full size below the water line and then reducing

may be too small, the draft may be insufficient, the fuel may not be of good grade, or the flue may need cleaning. Now all of these are in the boiler room end of the system and may not be the cause of the trouble at all. For example, the mains may be air bound, the drips may be insufficient or the lines may be pitched the wrong way, the main may be blocked, the return may be blocked if thermostatic traps are in use, they may be filled with dirt, the piping may be too small, the runouts may be improperly installed, and so on.

Now what is the logical way to go to work on such a trouble with a multitude of possibilities? The first thing to do is to eliminate as many of them as possible at one big bite and then to prove out the others, one by one, until the difficulty is found. It is always possible to decide at once if the trouble is in the boiler room or in the system by inspecting the boiler performance and asking if the boiler is maintaining a pressure of 2 lb. and can it maintain this pressure without difficulty. If the answer is "Yes," then there is no need for looking for trouble in the boiler room, as an adequate supply of steam is being generated and the source of the trouble

must be in the distribution system and not in the generation end.

Troubles in the distribution system are difficult to locate in many instances; in the first place a check-up of the pipe sizes should be made followed by a test of the lines with a level to see not only that they are pitched but also that they are pitched in the right direction. If nothing develops from these investigations the matter of dripping and venting should be gone into to see if air or water is piling up in the far ends of the mains and preventing steam from getting into these portions. Much can be ascertained by temperature feel which simply means putting the hand on the pipe, or covering, to locate how far into the system the steam has penetrated. It is

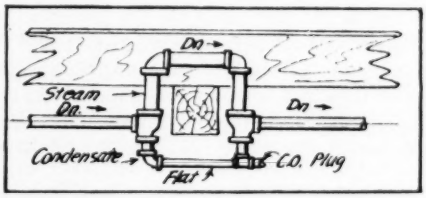


Fig. 8—Headroom was scarce with the result that this method of passing beams could have been used to good advantage

logical to suppose that in the usual case the trouble will be in the cold section rather than in the portion which is heating properly.

Opening up the end of the steam main often is enlightening and sometimes simply loosening a union near the end of the main will immediately announce the source of difficulty by discharging air under pressure, or water. Usually this—if allowed to continue—will result in the steam following along and heating the main but this must not be taken as a sign that a remedy has been found; it

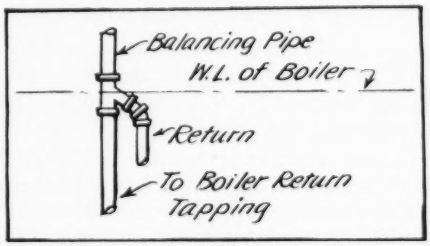
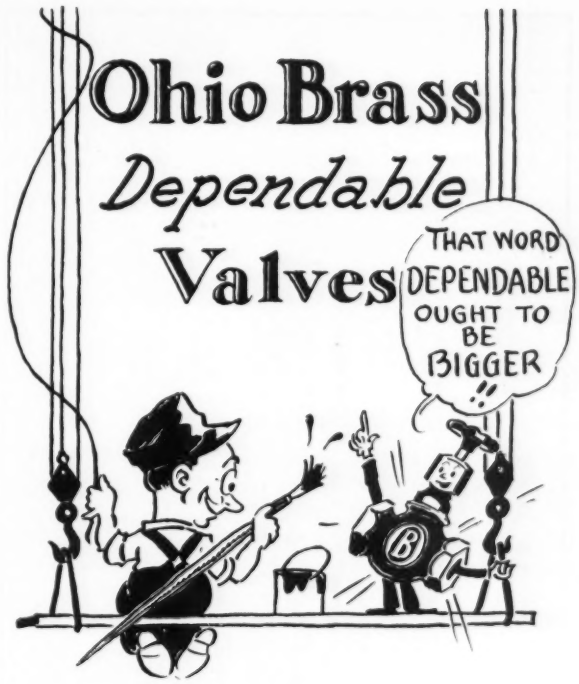


Fig. 9—With this method of piping, it might be possible to raise the invert of the loop without producing noise in operation

simply indicates that opening the end of the main provided some temporary relief which may be far from being a permanent cure. If air under pressure is expelled it is a sign to look over the air vent valves—some of them may be closed down too much or may be plugged with dirt, a condition particularly likely to happen in a new system. Possibly an air valve has been omitted in a strategic position such as at the end of the main where the pipe drops down below the water line.



The Ohio Brass Company
Mansfield 1661-V. Ohio

M S V
NEW "Nu-way" Genii
Low Priced Model

A COMPETITIVE MODEL
The Nu-Way MS-V Model "Genii" is low in price and meets all competitive markets.

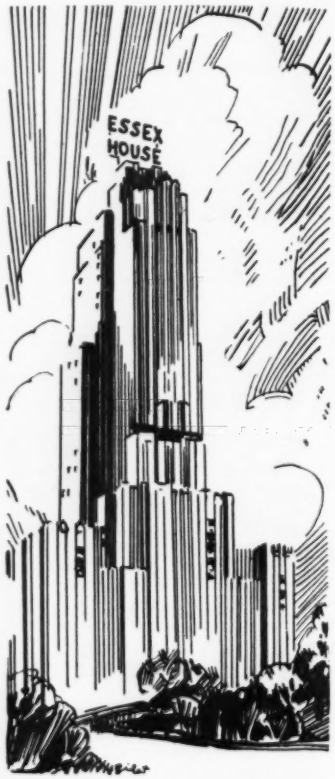
CAPACITY
The Nu-Way MS-V Model "Genii" has a capacity of 200 to 1200 feet of steam. It is attractive in appearance and carries the nationally accepted Nu-Way "Genii" name for quality.

COMPLETE LINE
The Nu-Way Corp. also has a complete line of automatic oil burners, hot water heaters and boiler heating units.

WRITE TODAY
For more information. A franchise with Nu-Way is a franchise of value.

NU-WAY "Genii" automatic oil burner Model MS-V
Attractive—Efficient—Low in Price.

The NU-WAY CORPORATION
ROCK ISLAND · · ILLINOIS



Visitors to New York Please Note:

Come to **ESSEX HOUSE.**
The location is central.
The view is magnificent.
The rates are reasonable.
The service is residential.
The difference is worth-while.

Dine and dance to the music of Glen Gray and the Casa Loma Orchestra playing nightly in the Colonnades. Broadcasting over the Columbia System.

ESSEX HOUSE
160 CENTRAL PARK SOUTH
Albert Auwaerter, MANAGER

If water squirts out instead of air then it is evident at once that there is something wrong with the return getting back to the boiler, which may be caused by either a difference in pressures too great for the water to overcome, a check valve with the tongue stuck, or even air piled up in front of the water. Each of these causes for the presence of water, where it should not be, must be investigated and, by the process of elimination, gradually discarded until the real one is reached.

Riser trouble is rather unusual but other conditions may make it *appear* that there is some riser difficulty. If it is found, for instance, that the steam main gets hot but that the risers in a certain section fail to carry the steam up to the radiators it generally will be found that—if only one riser is in trouble—the cause will be in the runout to the riser, the runout to the radiator, an offset in the riser, or the air valve on the radiator. On the other hand, if several risers are in trouble and they are all in one section of the main the probabilities are that the cause of difficulty is in the main and not in the risers at all. This goes on the theory that a million risers can't be wrong but that a single riser might well have something unusual happen to it such as an offset pitched in the wrong direction.

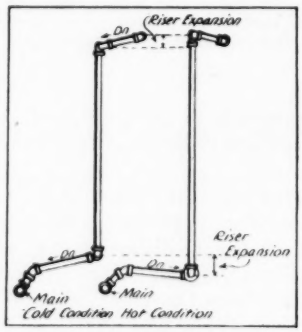


Fig. 10—This illustration shows, in an exaggerated way, how expansion in risers can reverse the pitch of the horizontal branches

The real place to hunt for trouble on a single riser is not so much in the riser itself as it is in the runout at the bottom from the main to the riser and the runout at the top from the riser to the radiator. Either of these may be pitched wrong, or may be pitched wrong after the system is hot, even though pitched correctly when the system is cold. This sometimes happens due to the expansion in the riser, either lowering the riser end of the runout from the main by the riser expanding downward or raising the riser end of the radiator runout by the riser expanding upward at the top—see Fig. 10. If the pitch and size of the runouts check up satisfactorily, then the trouble should be looked for in the radiator by taking off the air valve and waiting to see if the radiator heats. If the radiator heats with the radiator valve off and will not heat with the valve on, it is pretty good evidence that all the trouble is caused by an imperfectly set, or an imperfectly operating, air valve.

Degree Days—

(Continued from Page 78)

ciple, it will be assumed that the month without control there were 1,000 lb., of coal burned and that the month with the control there were 900 lb. burned. As this test took place in the latter part of the year it is fair to assume that, as the winter drew on, there was a greater heat demand but—without degree days—neither the purchaser nor the contractor could very well evaluate this, even as an average, to say nothing of the particular temperature conditions which attained during the two particular months when the coal was weighed. How then is the contractor to prove his saving and how is the owner to be satisfied that the guarantee has been met?

USE DATA TO SATISFY CUSTOMER

The contractor can ascertain from information published each year that during the first month the number of degree days were 750 and during the second month they were 1,000; now he immediately has a basis to go on as it is evident that the temperature demands for the second month were 250 degree days in excess of the first month and that the amount of fuel which would have been used the second month without temperature control would have been

1,000 / 750 or 1.33 which is 133 per cent

Actually the system, then, has supplied 133 per cent of the heat supplied during the first month with an expenditure of fuel amounting to 900 lb., which is

900 lb. / 1,000 lb. or 90 per cent of the fuel used the first month

and this shows an actual saving of

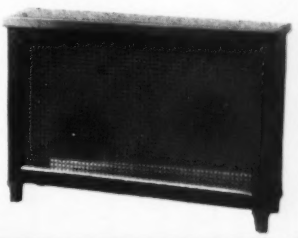
133 per cent — 90 per cent or 43 per cent where only 25 per cent was guaranteed.

As previously noted, degree days do not account for every item entering into heat demand; the chief omission is that of wind velocity. It is a well known fact that it is much harder to heat on a very windy day than on a much colder day when it is still; it also is easier to heat when there has been sufficient snowfall to close up many of the air leaks existing in every structure around the window sash and elsewhere; it is easier to heat on a bright sunny day when a lot of heat enters the building through the windows than on a cloudy day when no sun rays are received; it is easier to heat on a very dark day due to the increased use of electric lights which in themselves produce a certain amount of heat; it is easier to heat with a large number of people in the building because every person is equal to about 1 sq. ft. e.d.r., for the heat produced by his body. Also no allowance for variation in the heat content of the fuel is made in these considerations.

If, however, it is assumed that all of these items are of more or less secondary importance and that over a considerable period they will average up pretty close to equal, it will be seen that the major factor controlling heat demand is that of outside temperature when it is assumed that the building is to be kept at a comfortable degree inside for a more or less continuous occupancy. On this basis no fairer basis of comparison can be conceived than the degree day method.

NEW MODELS NEW PROFITS

SLYKER now offers . . . exclusively to the trade . . . *old* quality, *new* designs, *lower* prices and *liberal* discounts. Write for details today and take advantage of the increasing demand.



SLYKER
GARY INDIANA

GORTON EQUALIZING EQUIPMENT
makes all radiators heat up
EVENLY AND QUICKLY

★Gorton Surevent Equalizing Valves and Air Eliminators have the largest venting capacity of any on the market and by our special method of venting the radiators and mains they accomplish what no other equipment can do. They have cured many Automatic Heating Installations which previously were unsatisfactory.

Gorton Equalizing Equipment can be used on any steam or vapor system. As to results, we refer to leading manufacturers and dealers who recommend and use it.

Send for literature and trade prices—without obligation.

Equalize for profit as well as to solve problems.

GORTON HEATING CORPORATION
Since 1887 Manufacturers of Heating Equipment
CRANFORD NEW JERSEY

An Unusually Quiet Motor

Ideal for stoker, oil burner, air conditioner, refrigerator and other applications demanding *quietness in operation*—isolation of noise and vibration. Ratings up to and including 3 H. P. Sample available for test.

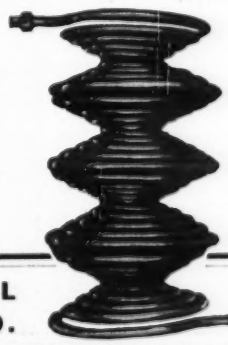
A. C. Repulsion-Induction. Interchangeable frames.
D. C. and Polyphase. Specials where required.

THE LELAND ELECTRIC COMPANY
Dayton, Ohio

Canadian Address Toronto
Leland
Cable Address Lelect

COPPER COILS

for all makes of Instantaneous Water Heaters "Coils That Are Really Guaranteed."



Catalogue Price List Mailed on Application. Also Manufacturers of Water Motors.

UNION COIL & MFG. CO.
207 INVESTMENT BLDG.
PITTSBURGH, PENNA.

95% of Oil, Gas and Coal Fired Furnaces Need

DRAFT-O-STAT

Hotstream Indirect Heaters

Supply hot water at extremely low cost. Easily installed on any type of boiler. Also used for preheating fuel oil. A full line of sizes to meet every need.

Write for literature.

Because—it automatically controls chimney drafts, thus insuring maximum combustion efficiency. Many users report fuel savings up to 25%.

Practically every furnace and boiler owner is *your prospect.* Draft-O-Stat is easy to install. Gives you a generous profit. Write for descriptive literature.

Domestic types 6" to 20"
Industrial types 16" to 36"

Listed as standard by Underwriters' Laboratories.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat" CLEVELAND, OHIO

for your trade library

☆

AIR CONDITIONING SIMPLIFIED

A new book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business 216 pages; 5½x8¼, bound in cloth — price postpaid $1.00.

ALT'S HOUSE HEATING PLANS

By Harold L. Alt. Will give the heating contractor the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating equipment has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8½, bound in cloth, price postpaid $1.00.

Book Department
Domestic Engineering, 1900 Prairie Ave., Chicago, Ill.

Eight Thousand Attend Motor Wheel Corporation's Picnic

The Motor Wheel Corporation of Lansing, Mich., held its regular annual picnic recently on the shores of a lake near that city. Officials of the company, employees and their families, numbering about 8,000, took part in the day's sports and entertainment. Thousands of barbecued sandwiches, prepared on the company's oil burning bake ovens, were served to the picnickers as fast as they could eat them.

Gas Companies in This Country Gain Many New Customers

Paul Ryan, chief statistician of the American Gas Association, has announced that the number of domestic customers served by manufactured and natural gas companies totaled 14,751,600 on June 30 this year. This was an increase of 360,000 customers during the first six months of the year.

Cooling Towers Discussed at San Francisco A. C. Meeting

The subject "Construction and Operation of Cooling Towers" was interestingly discussed at the monthly luncheon meeting of the San Francisco Air Conditioning Society, by M. B. Smith of the Hammond Lumber Company. The meeting took place at Marquard's Cafe on October 12th.

"Essentially," said Mr. Smith, "a cooling tower offers the means of breaking up water and cooling it as fast as possible. While it is employed in a wide range of industries, oil refiners are the largest users. Redwood is the ideal material for cooling towers, which was proved by the world's largest oil company when they constructed a steel tower; later, when it rusted and gave trouble it was replaced with redwood construction." The speaker added that 99 per cent of the cooling towers are built of redwood, as it is not only more durable than other woods, but will not support combustion, which point it is well to remember when building such structures in cities where certain fire ordinances are in effect.

"The limiting temperature of cooling towers," he went on, "is known as the wet bulb temperature." . . . "When in doubt on this class of construction, it is safe to provide for a 7½ degree range of temperature, disregarding humidity altogether. The cooling tower engineer is interested only in wet bulb temperature."

The speaker disagreed with those who argue in favor of larger towers in warmer climates, demonstrating the soundness of his position. He pointed out that spray distribution systems have proved more efficient than flume distribution, when they are fitted with non-clogging type of sprayers, the flume distribution system being more apt to collect algae which is bound in impair efficiency. Referring to the placing of louvres in the atmospheric type of cooling tower, Mr. Smith spoke of a common objection arising from the loss of water which, in turn, sometimes creates a nuisance; this, he said, is being overcome in some cases with the introduction of baffles, although the difficulty has not yet been entirely met.

KAINER

GOVERNORS

for **HOT WATER HEATING SYSTEMS**

PERFORMANCE—
is the thing that has ESTABLISHED KAINER GOVERNORS in the heating field.

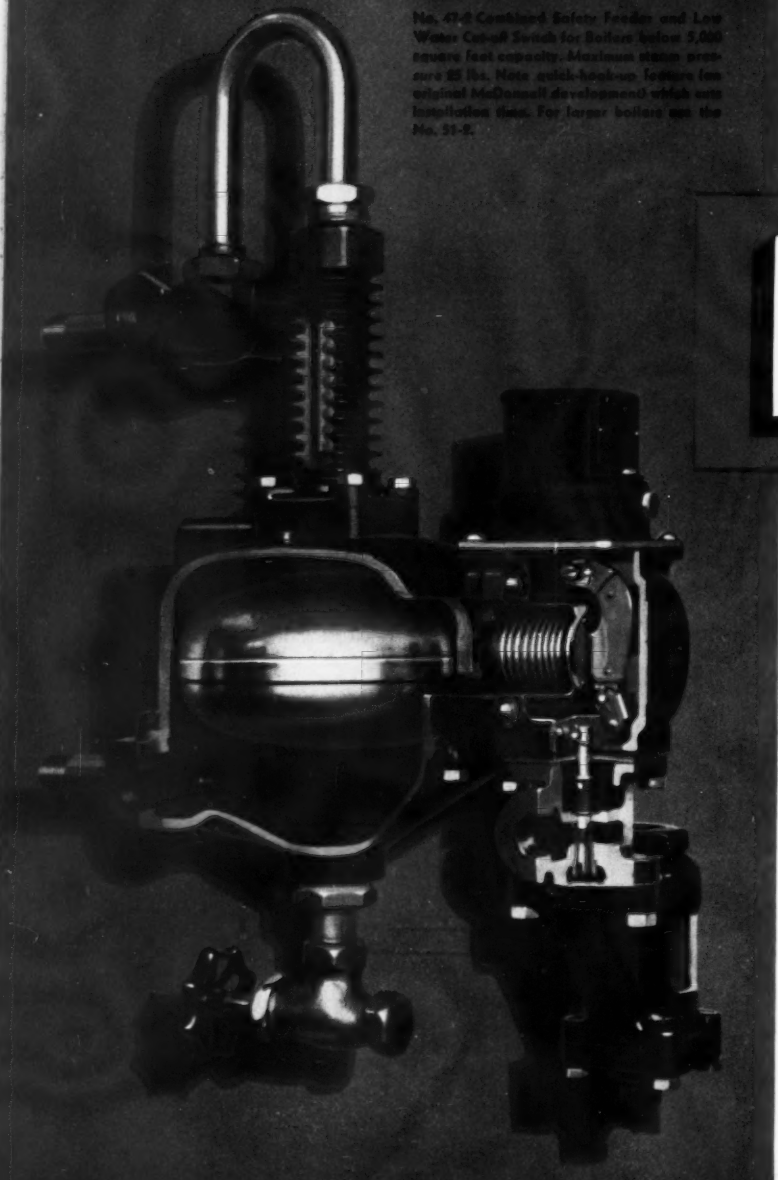
JOBBERS, CONTRACTORS, and CONSUMERS recognize not only this "PERFORMANCE RECORD", but also the SATISFACTION resulting from KAINER GOVERNOR SALES—INSTALLATIONS and OWNERSHIP.

Write for Literature Today!

Handled by Recognized Jobbers!

KAINER & COMPANY

761 Mather St., Chicago



No. 47-2 Combined Safety Feeder and Low Water Cutoff Switch for Boilers below 5,000 square feet capacity. Maximum steam pressure 25 lbs. Note quick-hookup feature (an original McDonnell development which cuts installation time). For larger boilers use the No. 51-2.

It's BUILT

—as only ten years of "Doing One Thing Well" could build it!

Can you think of anything you sell in which *absolute dependability* is so essential as in a boiler water level control?

Most oil burner dealers and heating contractors recognize this today. And those who do, also recognize the importance of installing the product of an organization that has given undivided attention to the perfection of Boiler Water Level Controls from the day it was founded more than ten years ago.

The present McDonnell Combined Safety Feeder and Low Water Cut-off incorporates features found in no other device of this kind—features that could only have been developed out of practical experience with more water level control conditions than any other organization has had an opportunity to study.

Developed five years ago in McDonnell Safety Feeders, the cool feed valve feature (Pat. No. 1934486) definitely put an end to the chief cause of feeder troubles—the formation of lime and scale at the feed valve. Each year since, this construction has been more highly perfected with the result illustrated opposite—a valve that is built not only to "dish it out," but also to "take it" year after year under all service conditions.

All working parts in this valve mechanism are removed from the hot water and steam zone—all are die-formed (at great tooling expense) so that they work with precision and stay in perfect alignment. The valve and seat are hardened stainless steel, instead of the composition discs ordinarily used in boiler feeders. The double sylphon construction does away with packing, leaking and friction. An ingenious new leverage system, with a cam-and-roller effect, gives an ideal, straight-thrust valve action. Such a valve is BUILT—built to work right *always*.

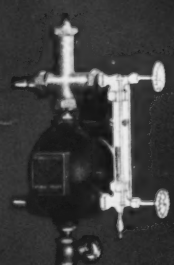
And there are almost countless other refinements of design, materials, and workmanship such as the larger strainer, mounted in place at the factory—features that are tested by more than 40,000 feeders of this basic construction.

The McDonnell No. 47-2, illustrated opposite, is typical of all McDonnell equipment. Use it for automatic jobs below 5,000 square feet capacity, and use the No. 51-2 for all jobs above 5,000 square feet. These combined units make the boiler water level as automatic as the firing and should therefore be the first choice for all oil-fired or stoker-fired boilers.

Where the customer is not willing to pay a few dollars more for the added convenience of the combined safety feeder and low water cut-off, the McDonnell No. 60 offers the most dependable low water cut-off that money can buy.

The new Condensed Catalog is a complete sales and installation manual in four pages. Write for it.

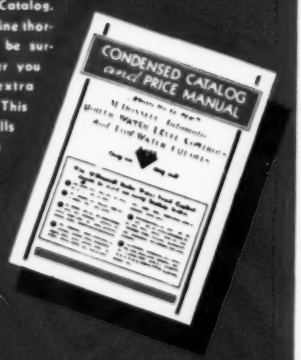
McDONNELL & MILLER
1306 Wrigley Building, Chicago, Illinois



The McDonnell No. 60 Low Water Cut-off for heating boilers of any size, maximum steam pressure, 25 lbs. It is furnished either with quick-hook-up fittings for installation in water glass tappings (60-B) or without this feature for installation with 1 inch equalizing pipes (60-A). Order No. 39 H. P. Low Water Cut-off for steam pressures from 25 to 100 pounds.

Know the McDONNELL LINE

Write for Condensed Catalog. Know the McDonnell line thoroughly and you will be surprised at the number you can sell and the extra profits you can make. This condensed catalog tells the whole story. Write for it.



McDONNELL Boiler Water Level CONTROL

Your jobber stocks McDonnell Controls

"Doing One Thing Well"

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Ask For Fee on Future Delivery Contracts

The following information has just been released by the Institute of Boiler and Radiator Manufacturers:

1. The manufacturers of cast iron boilers, and/or cast iron radiators and/or cast iron hot water supply boilers, are vitally interested in the distribution of their product through proper channels. Hence, our product goes from the manufacturer to the wholesaler and/or the heating contractor.

2. Broadly speaking, our industry is divided into three parts: the manufacturers, the wholesalers and the heating contractors. Over us all a very real menace confronts all three divisions, namely, the menace of the misuse and abuse of the future delivery contract. All of us know that the legitimate F. D. C. should be honored and protected, and all of us know that the illegitimate F. D. C. should be eliminated.

3. The manufacturers of our industry, at a meeting held in New York City recently, discussed this question of the F. D. C. at length, and by an unanimous vote approved a clearing house budget and a clearing house. This clearing house has been set up and is actually functioning through neutral agencies who are checking every reinstatement of an F. D. C. completely throughout the United States, and who are returning to the office of the secretary and then on to the various manufacturers, an itemized report on the particular job in question as covered by that reinstatement.

4. The results of the checking of several thousand F. D. C. reinstatements are amazing. Considerably more than half of the reinstatements have been found to be fictitious and illegitimate, notwithstanding the statement by the wholesalers and/or heating contracttors that such a job did exist, and that he was under obligation to furnish the material. In many cases the purchaser has placed the same order with several manufacturers; in other words, the purchaser is speculating on receiving some contract on which he can furnish the material covered by an F. D. C. that he has not closed. A few of the numerous highlights appearing on the neutral agencies' field men's reports are as follows:

"Have taken no estimates, nor have I any intentions of making any changes in my heating system."

"Never thought of having work done."

"All news to the owner."

"No house on this street at all—it is a Brighton subway."

"Wrong address—this is a public park."

"This is a cemetery."

"Installed oil heat five years ago. No intentions."

"Above address does not exist, and there is no street made through property where this address would be located, it being a vacant piece of undeveloped land."

"Vacant lot—recently razed."

5. The menace of the F. D. C. is not only a menace to the manufacturers, but is even more of a menace to the wholesaler and to the heating contractor, because if the wholesaler has a number of illegitimate F. D. C.'s to play with, he gives unfair competition to the wholesaler who conducts his business properly. The heating contractor receives the same unfair competition if another heating contractor in or near his city has entered a number of illegitimate F. D. C.'s with various companies or with various wholesalers, because on a price advance, he can switch these F. D. C.'s to his advantage and to the disadvantage of his competitor.

6. Therefore, the message that we bring to you who are our customers, is a message that we are endeavoring through our clearing house to eliminate the abuse and misuse of the F. D. C. We know that through your medium, whole-hearted support will be given so that the elimination of the illegitimate F. D. C. is removed from our whole industry, and by that I mean the manufacturers, wholesalers and the heating contractors.

7. If and when a price advance takes place, every manufacturer will ask that every buyer accompany this F. D. C. with a $2.00 fee, which fee is to be used for checking purposes by the neutral agencies. So all three branches of our splendid industry—the manufacturer, the wholesaler and the heating contractor—have a great stake in protecting the legitimate F. D. C. and stamping out the illegitimate F. D. C.

(Signed) F. W. HERENDEEN, Secretary,
Geneva, N. Y.

Bendix Enters Water Softening Field

The Automatic Products Corporation, a holding company of the Bendix group, recently announced that it had become the majority stockholder of the General Water Treatment Corporation and its subsidiaries, the Permutit Co. and the American Zeolite Co. This marks the entrance of Vincent Bendix, one of the outstanding manufacturers of automobile specialties, into the water softening and treatment field and is expected to be the first step in his entrance into the air conditioning field.

The holding company has no connection with the Automatic Products Co., Milwaukee, Wis., an independent concern making temperature control equipment.

Integrity Supply, Inc., Starts in Business in New York City

The Integrity Supply, Inc., has started in business at 204 East 26th Street, New York City. The company's officers are: M. A. Ferri, president, and A. H. Dion, vice president.

Central Western Wholesalers Association Holds Annual Meeting

The Central Western Wholesalers Association held its annual meeting in the Kirkwood Hotel at Des Moines, Iowa, on Tuesday, October 9, with a good representation from all divisions of the association, namely Minnesota, Nebraska and Iowa.

The meeting was started at 9:45 in the morning and continued until after 4 o'clock, with adjournment for luncheon, after which deliberations were at once resumed.

Resolutions were adopted on the suggested resale of valves and fittings, denouncing the unfair sales policy as to wholesalers by manufacturers of asbestos products and commending the manufacturers of automatic storage heaters in including Iowa in the same territory as that east of the Mississippi River.

The election of officers resulted as follows: President, E. J. Leighton; vice president (for Nebraska), H. L. Dempster; vice president (for Minnesota), P. J. Frey; secretary-treasurer, D. R. Thomas, Minneapolis.

Executive committee: E. E. Roberts of Minneapolis, O. R. Manners of St. Paul, and A. B. Anderson of Duluth, for Minnesota; W. T. Cotter and H. J. Bailey, both of Omaha, for Nebraska; R. A. Hodgson, Sioux Falls, for South Dakota; J. M. McDonald, Jr., of Dubuque, and B. D. Kurtz of Des Moines, for Iowa; F. W. Swanson of Des Moines, at large.

A vote of thanks was given the officers for their services during the past year.

Goodfellowship and co-operation were manifested throughout the entire meeting.

Re-Enters Field of Radiator Shields Under Name of Slyker at Gary

Edward Sleicher, well known for many years through his connection with Sleicher, Inc., manufacturer of radiator shields, has re-entered that business. Mr. Sleicher is now operating under the name of Slyker at Gary, Ind., manufacturing shields for use with radiators.

Eastern Supply Association Discusses FHA and Code

J. M. Chaplain Is Re-Elected President

The Eastern Supply Association held its annual meeting in the Hotel Astor in New York City on Wednesday, October 10, with a good attendance.

President J. M. Chaplain presided and delivered a most timely address of welcome.

James A. Messer of Washington, chairman of the nominating committee, presented the names of the following officers and directors of the association for the ensuing year, with the result that they were unanimously elected:

OFFICERS

President, J. M. Chaplain, John Simmons Co., Long Island City, N. Y.—Re-elected.

First Vice President, H. T. Richardson, Richardson & Boynton, New York City.—Re-elected.

Second Vice President, George E. Trudel, Geo. E. Trudel Co., Manchester, N. H.

Secretary-Treasurer, Frank S. Hanley, New York City.—Re-elected.

DIRECTORS

The members of the board of directors are Messrs. Chaplain, Richardson, Trudel, and

E. P. Corey, Youngstown Sheet & Tube Co., Youngstown, Ohio.

J. J. Crotty, Central Foundry Co., New York City.

C. W. Farrar, Excelso Products Corporation, Buffalo, N. Y.

A. N. French, Kohler Co., New York City.

John J. Hall, Standard Sanitary Mfg. Co., Pittsburgh, Pa.

J. S. Mattimore, Walworth Co., New York City.

Charles Millar, Chas. Millar & Son Co., Utica, N. Y.

L. U. Noland, Noland Co., Inc., Newport News, Va.

Claude W. Owen, E. G. Schafer Co., Inc., Washington, D. C.

J. F. Sheppard, C. S. Mersick & Co., Inc., New Haven, Conn.

Edward Smolka, E. Smolka Plumbing Supply Co., New York City.

A. F. Trageser, John Trageser Steam Copper Works, Maspeth, N. Y.

NEW MEMBERS

The two following concerns were admitted to membership: Radiator Specialty Co., Charlotte, N. C., and Wheatland Tube Co., Philadelphia, Pa.

Secretary-Treasurer Hanley presented the reports of the treasurer and the Credit Bureau, and they were approved by the membership. The advantages of submitting past-due accounts to the Eastern Supply Association for collection were stressed by Secretary Hanley, and members were urged to use this valuable service.

Julian M. Gerard, regional director of the Federal Housing Administration, delivered a fine address on the Federal Housing Program, pointing out some of the benefits which it will bring to the Plumbing and Heating Industries. His

J. M. CHAPLAIN
Re-elected President

statistics indicated a tremendous market for plumbing and heating goods. Of the 29,000,000 buildings in this country, 16,000,000 are in need of repair, and 3,000,000 are beyond all hope of repair. Nearly 25 per cent of Manhattan's homes are without proper sanitary facilities. 200,000 homes are

without central heating plants. 100,000 are without bathtub or shower. 60,000 are without running water. FHA should remedy this condition. Mr. Gerard also stated that his office at 11 West 42nd Street, New York City, would cooperate with members if they desired pamphlets relating to the Federal Housing Plan.

A. N. French of Kohler Co. directed the attention of the members to the excellent publicity work which is being done by the Plumbing and Heating Industries Bureau in connection with the Federal Housing Plan.

Dr. W. I. King, professor of Economics in New York University, addressed the convention on "Various Phases of the New Deal." He advocated the restoration of competition and was not in favor of curtailment of production.

H. T. RICHARDSON
Re-elected First Vice President

In the discussion at the meeting, it was brought out that the Eastern Supply Association, composed of manufacturers and wholesalers of plumbing and heating supplies, is one of the oldest organizations in the country and has existed for more than 30 years. This discussion emphasized the advantage of such an organization which could approach problems on a broader basis than local organizations.

An inspiring talk in respect to the Eastern Supply Association was given by Joseph A. Maynard, former president, and now collector of the Port of Boston. In sketching the place of this association in the industry, Mr. Maynard drew upon his firsthand talks with both wholesalers and manufacturers all over the country. He urged that the E. S. A. "receive the whole-hearted cooperation of all wholesalers even if they belong to local organizations, as the E. S. A. by reason of its long history and its composition of both manufacturers and wholesalers has been, and is, of decided value to the industry."

L. U. Noland of Newport News, Va., presented a resolution, which had been approved the previous day by the board of directors of E. S. A. This resolution was unanimously ratified by the convention. It referred to the Code of Fair Competition for the Industry of Wholesaling Plumbing Products, Heating Products, and/or Distributing Pipe Fittings and Valves, as approved on August 25, 1934, and it read in part as follows:

"After the Code was approved by the Joint National Committee and the Government, acting through its administrators, Mr. King and Mr. Jacoby, to our surprise on receiving the document, while the Code was printed in accordance with our agreement starting with Article 1, and running through to Article 11, inclusive, we discovered an exemption in the order of approval which is not satisfactory to the industry, your committee or your board of directors.

"ACCORDINGLY, your board of directors by unanimous approval recommends to the membership that they refuse to accept the Code, unless the following is deleted from paragraph 2, page 1: 'Provided that exemption to the provisions of this Code be and is hereby granted to those members of the Wholesale Hardware Trade who are complying with the provisions of the Code of Fair Competition for the Wholesaling and Distributing Trade and the Supplemental Code of Fair Competition for the Wholesale Hardware Trade pending my further order.'"

Dr. John L. Davis finished the morning session with a semi-humorous talk, containing a lot of hard common sense. He was given a rising vote of thanks.

Following an excellent good fellowship luncheon, the afternoon session was opened by Willard Speakman, Jr., of The Speakman Co., Wilmington, Del., who spoke in the absence of his father. Mr. Speakman gave an excellent talk on conditions in the brass industry.

GEORGE E. TRUDEL
Elected Second Vice President

John J. Hall, vice president and general manager of sales of the Standard Sanitary Manufacturing Company of Pittsburgh, Pa., gave a most instructive talk about the policies of his company. (This address is published elsewhere in this issue.)

A. F. Trageser of the John Trageser Steam Copper Works, Maspeth, L. I., N. Y., gave an informative talk on the present situation in the copper and galvanized boiler lines.

H. W. Steinkraus of the Bridgeport Brass Co., Bridgeport, Conn., spoke about conditions in the brass pipe and water tube lines, his company's policy, and the importance of living up to the distributors' agreement. He was optimistic about the future.

In bringing the convention to a close, President Chaplain commended Secretary Hanley for his cooperation and work during the past year. Referring to his own plans Mr. Chaplain said that he would work not only for Eastern Supply Association but for the welfare of the entire industry.

Plumbing and Heating Industries Bureau Holds Annual Meeting

The Plumbing and Heating Industries Bureau held its annual meeting at the Stevens Hotel in Chicago on Monday, October 8, attended by representatives of the twenty-one associations of manufacturers, wholesalers and contractors who are financing the publicity work of the Bureau this year.

It was the first meeting under the new form of organization which places the control of the Bureau and its financial support entirely in the hands of associations in the plumbing and heating industries.

Officers of the bureau were complimented on the large volume of favorable newspaper, magazine and radio publicity obtained with a small budget. A conservative expansion in the Bureau's financing was voted for 1935.

"I am amazed at the scope of the Bureau's publicity program. Few manufacturers realize what it is doing to widen the demand for their products," said William M. Byrd, Jr., vice-president of the Alabama Pipe Company.

"A means should be found to bring the constructive work of the Bureau to the attention of every manufacturer in the plumbing and heating industries," said Charles K. Foster, executive vice-president of the American Radiator Company.

"There isn't another organization in the United States that can point to so much constructive publicity obtained with such a nominal budget," said C. M. Light of the Peoples Gas Light & Coke Company, who represented the American Gas Association at the meeting.

OFFICERS PRESENT ANNUAL REPORTS

The following officers and committee chairmen presented reports to the meeting: John M. Kohler, president; John J. Calnan, chairman of the finance committee; Russell G. Creviston, chairman of the committee on constitution and by-laws; Harry F. Beglen, treasurer, and Norman J. Radder, secretary.

"Clippings of articles written by the bureau and printed in daily newspapers total 45,000 inches for the first nine months of this year," said Mr. Radder in his report in which he reviewed the work accomplished.

"This is equivalent to nearly 300 pages of a standard size newspaper.

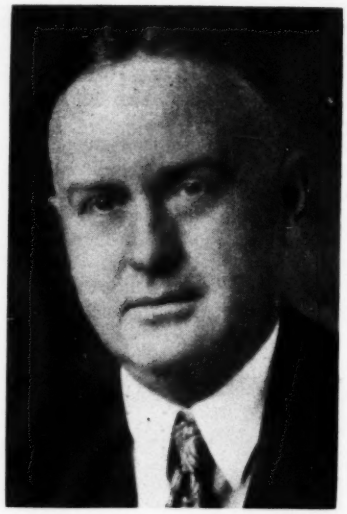
"Inasmuch as included in this total are newspapers such as the New York Herald-Tribune, Christian Science Monitor, Boston Transcript, and Chicago Tribune, with high advertising rates, it may conservatively be said that, if it had been necessary to buy the space occupied by publicity articles, the cost would have exceeded $60,000.

"The Bureau's articles are deliberately written to create dissatisfaction with obsolete equipment and with inadequate plumbing and heating equipment. By contrast, the convenience, comfort and investment value of modern and adequate equipment are emphasized."

USE RADIO BROADCASTS

Mr. Radder called attention to the large number of radio stations which are using broadcasting material prepared by the Bureau, at no cost to the industries for the time on the air. These broadcasts are designed to stimulate public interest in modern plumbing and heating equipment. Comments from program directors of radio stations in New York, Boston, Pittsburgh, Buffalo and Spokane were read.

"The volume of inquiries from consumers for information on types of plumbing and heating equipment mentioned in newspaper or magazine articles or in radio broadcasts at certain times this year has been so large as to tax the Bureau's correspondence facilities," said Mr. Radder.



W. E. Price, President-Elect

Members of the Bureau were particularly interested in that part of the secretary's report dealing with cooperation with the Federal Housing Administration.

"The huge publicity machine set up by the FHA offers an unparalleled opportunity for the plumbing and heating industries to get national publicity in a wide variety of media and under very favorable circumstances," said Mr. Radder.

"The National Housing Act was signed by President Roosevelt on June 27. In looking through my files, I find that the first mailing of publicity material for the use of the FHA was made on June 26."

BUREAU MATERIAL USED BY FHA

Mr. Radder, by means of posters and displays, indicated the extent to which the FHA has made use of editorial and pictorial material supplied by the Bureau.

That the work of the Bureau should be more adequately financed next year in order to utilize more fully the many publicity opportunities offered to the plumbing and heating industries by the FHA program for modernization and new construction was the recommendation made in Mr. Kohler's report.

"A budget of under $9,000 for a national publicity program for the plumbing and heating industries is absurdly small," Mr. Kohler said. "It is entirely out of line with the economic importance of our industries and the results which we might conservatively expect from a more active participation in the FHA program."

Mr. Beglen as treasurer and Mr. Calnan as chairman of the finance committee reported total pledges by 21 associations and individual firms of $8,750 and stated that "it has been our earnest effort to keep our expenses within our income."

Mr. Creviston declared that the Bureau's present method of organization with its support coming from associations of manufacturers, wholesalers and contractors is an ideal set-up for an agency devoting its efforts exclusively to publicity work.

The members of the Bureau voted to amend the by-laws

increasing the number of directors from 15 to 20 in order to give all associations an opportunity to be represented on the Board.

A committee consisting of Frank B. Hackett, Brunswick-Balke-Collender Company, chairman; A. C. Brown, Chicago Faucet Company, and George E. Hoffman, Crane Company, presented nominations for the Board of Directors.

The following were elected members of the Board: John A. Coe, president, American Brass Company, representing the Copper and Brass Research Association; W. C. Besschorman, executive vice-president, National Lead Company, representing the Lead Industries Association; John J. Calnan, president of the National Association of Master Plumbers; George E. Hoffman, manager of the plumbing sales department of Crane Company, representing the Vitreous China Plumbing Fixture Association; A. C. Brown, president, Chicago Faucet Company, representing the Sanitary Brass Manufacturers Association; W. E. Price, president of the Central Supply Association; George H. Dickerson, president, Mehring-Hanson Company, representing the Heating, Piping and Air Conditioning Contractors National Association; H. C. Bulkeley, president, American Sanitary Mfg. Co., representing the Sanitary Seat Manufacturers Association; Charles K. Foster, executive vice-president, American Radiator Company, representing the manufacturers of boilers and radiators; Herbert V. Kohler, executive vice-president, Kohler Co., representing the Sanitary Cast Iron Enameled Ware Association; William M. Byrd, Jr., vice-president, Alabama Pipe Co., representing the Cast Iron Soil Pipe Association; Donald L. O'Hair, P. E. O'Hair & Co., representing the Western Supply Association; E. Carpenter, the Careva Co., Inc., York, Pa., representing the Tri-State Plumbing and Heating Supply Wholesalers Association; W. L. Schaeffer, advertising manager of the National Tube Co.; E. A. Eckhouse, treasurer, Central Brass Manufacturing Company, representing the National Brass Association; Leo C. Klemmer, Plumbing and Heating Trade Journal; R. V. Sawhill, editor, DOMESTIC ENGINEERING; John M. Kohler, Chicago manager, Kohler Co.; R. G. Creviston, sales promotion manager Crane Co.; Harry F. Beglen, vice-president, Standard Sanitary Mfg. Company.

Norman J. Radder
Secretary

The directors elected the following officers: W. E. Price, president; John J. Calnan, vice-president Harry F. Beglen, treasurer; Norman J. Radder, secretary.

Mr. Price is president of the Knapp Supply Company, Muncie, Indiana, and president of the Central Supply Association. For many years he has been active in the promotion of modernization campaigns in Muncie and other Indiana cities.

J. A. Anderson Dies in His 44th Year

Joseph Arthur Anderson, sales manager of the Kansas City, Mo., branch of Crane Co., died at his home in that city on October 14 of heart disease in his 44th year. Mr. Anderson was born in Kansas City and received his education in the local schools. He served as a first lieutenant in the World War after being trained at Camp Funston. His parents, a brother and a sister survive him.

Jobbers Credit Association Will Hold Ninth Annual Dinner and Dance

The Jobbers' Credit Association, Inc., of New York City has just announced that its ninth annual dinner and dance will be held in the Grand Ball Room of the Commodore Hotel in New York City on Saturday evening, December 1.

This is a social event which is always well attended by manufacturers and wholesalers, and Secretary Glen H. Van Buren calls attention to the fact that the tickets, at $7.50 per person, this year are the lowest ever charged for attendance at these affairs.

There will be the dinner, dance, music, entertainment, novelties and surprises, all of which will tend to make it one of the most interesting events of the year in the trade.

The officers of the association are: A. M. Behrer, president; T. Arthur Johnson, first vice president; Henry D. Gasner, second vice president; Mortimer H. Smolka, treasurer, and Glen H. Van Buren, secretary.

The entertainment committee consists of E. E. Basch, chairman; Frank G. Baumann, Elmer Doolittle, Henry D. Gasner, Milton M. Goldsmith, John Harmon, T. Arthur Johnson, E. F. Keating, V. H. Kincaid, M. Meyerowitz, Leo M. O'Neil, J. P. Rogers, Edward Schwartz, Joseph Simmons and Mortimer H. Smolka.

Has Opened Office and Warehouse in Philadelphia

Weil-McLain Co. of Chicago has opened office and warehouse at Sixteenth Street and Glenwood Avenue, Philadelphia, where a complete stock of this company's products will be carried. A. M. Hopwood, who has represented this concern in that area for a number of years, will be in charge of the office and warehouse, and he will be assisted by C. L. Maxwell.

Will Represent Warwick Brass Machine Co. in Greater New York Area

Warwick Brass Machine Company of Lincoln Park, R. I., manufacturer of malleable ground joint and brass unions, has just appointed the H. M. Flemming Company, Inc., of 30 Church Street, New York City, as its exclusive representative in the Greater New York area.

Salesmen Organize to Promote Sound Distribution

Several salesmen handling plumbing and heating products, and all of them representing the same company in their different districts, recently organized to support the distribution of plumbing and heating supplies through the established channels. To accomplish that aim, William B. Schuler, 1536 E. 69th Street, Chicago, was named group manager. Others interested in the plan are L. L. Wright, Indianapolis, Ind.; M. N. Kenyon, Battle Creek, Mich.; H. H. Leukart, Columbus, Ohio, and Frank Wiedeman, Milwaukee, Wis.

Robert C. Mead Passes Away

Robert C. Mead died Monday, October 29, at his home in Woodmere Hotel in Chicago, of heart failure in his 74th year. Mr. Mead was for many years secretary and manager of the purchasing department of Henion & Hubbell, jobbers of plumbing and heating supplies in Chicago. He retired from business about four years ago, after having been with Henion & Hubbell for 37 years. He is survived by his widow and one daughter.

Appoints Three New Distributors

The Union Coil & Mfg. Co., 205 Investment building, Pittsburgh, Pa., has appointed three new distributors: Water Heater Engineering Co., 255 Flatbush Ave., Brooklyn, N. Y.; Fischler Co., New Castle, and Bevier Water Heater Exchange, 2169 Dana Ave., Cincinnati, Ohio.

Fletcher-Weil Co. Moves to Larger Quarters

Fletcher-Weil Co. of Los Angeles, Calif., has moved its warehouse and showroom to larger quarters at 940-950 South Alameda Street in that city. This concern has been west coast representatives for the last four years for the Para Manufacturing Company, Inc., of Newark, N. J.

Ohio Brass Co. Pays Accumulation Dividend

Ohio Brass Company of Mansfield, Ohio, recently paid an accumulation dividend of $3 a share on the 6 per cent preferred stock. Following this distribution the arrears are $1.50 a share.

Yeomans Bros. Co. Announce Promotions

The stockholders of Yeomans Brothers Company of Chicago held a meeting recently, at which D. W. Burgoon, vice president and general manager, was elected to membership on the board of directors, and H. T. Jeffery was elected secretary in addition to his office as sales manager.

Opens New Sales Office

The Ilg Electric Ventilating Co., Chicago, announces the opening of a new sales office in Schenectady, N. Y., at 122 Jay street. R. R. Cooper is manager of the new office.

New York Plumbing and Heating Golfers Close Season

The Plumbing and Heating Golf Association of New York held its final tournament of the season at the Tamarack Country Club, Port Chester, N. Y., October 16, with 38 members and guests in attendance.

The prize winners were as follows: 1, J. Karle; 2, Thos. Powers; 3, Karl Roberts; 4, Wm. Mittleman; 5, A. S. Mohrman; 6, H. Neely; 7, M. Smolka; 8, H. Halloran; 9, C. S. Coleman; 10, C. D. Waters; 11, L. O'Neil: 12, T. A. Johnson; 13, F. S. Parker; 14, C. H. Liebfried; 15, E. Duklauer; 16, H. Hannon; 17, J. Woods; 18, H. Garrity; 19, Lew Powers; 20, Morris Jarcho; 21, Mr. Byrnes; 22, John Weil; 23, B. Fassler; 24, Mr. Fenton; 25, G. B. Van Buren; 26, George Cornell.

Others attending the tournament were: D. Warth, C. Henzel, Wm. McVickar, Frank Granson, Henry Zook and Charles Smith.

The best gross scores of the day were made by T. A. Johnson with 76, and by Lee Kelly with 84.

John Weil, the retiring president, was presented by members of the association with a sterling silver after dinner coffee service.

The officers elected for next year are: President, E. Duklauer; first vice president, L. Powers; second vice president, B. Fassler; secretary, G. B. Van Buren; assistant secretary, M. Smolka; treasurer, Karl Roberts; assistant treasurer, C. S. Coleman; handicap and tournament committee: H. Garrity, F. Brutschy and Jerry Edwards.

In a Personal Way

J. Walter Singmaster, president of Lehigh Valley Supply Company of Allentown, Pa., has been appointed chairman of the Better Housing Committee of Lehigh Valley, according to announcement by Jas. A. Moffett of the Federal Housing Administration.

Lester L. Graves, assistant manager of the Standard Sanitary Manufacturing Company's branch in Kansas City, Mo., has been elected commander of the Sanford Brown, Jr., Post of the American Legion. Mr. Graves served as vice-commander and chairman of membership of the post last year and brought the post's membership up to 394. Mr. Graves served in the air corps in the World War.

Lester L. Graves

L. P. Kalbourne has been appointed sales promotion manager of Sarona, Inc., 86 Orange Street, Bloomfield, N. J., according to announcement issued by F. Layman, secretary of this company.

R. B. Everson, president of the Everson Filter Company of Chicago, delivered an instructive address in Chicago on Thursday evening, October 11, before a large group of engineers. His address was on the construction and operation of swimming pools, and it was illustrated by several reels of film.

Robert T. Farley has been appointed sales representative for J. G. Gregory & Co., manufacturers' agents at 228 North La Salle street, Chicago. Mr. Farley was formerly Chicago representative for the Heating Products Division of Chase Brass & Copper Co., Inc., Waterbury, Conn.

J. S. Malone of St. Louis is now representing several prominent manufacturers selling to wholesalers in the St. Louis and nearby territory. He had been associated with the N. O. Nelson Mfg. Co. of St. Louis for more than 25 years but resigned to give full time to his new sales agency.

Southwestern Trade Golfers Hold Enjoyable Tournaments

The Southwestern Trade Golf Association, sponsored by the Plumbing and Heating Industry of Kansas City, Mo., and Kansas City, Kansas, held an enjoyable tournament at the Meadow Lake Golf and Country Club on September 26, with a good attendance.

The Association held its final tournament of the season at Victory Hills Golf Club on Wednesday, October 10.

The prize winners at this meet were:

Class A: Charles Harris, 75-12-63; Daniel Foley, 84-15-69; F. A. Scoles, 88-16-72.

Class B: E. R. Hendricks, 85-20-65; John Karges, 88-23-65; L. L. Graves, 86-17-69.

Birdies: Charles Harris, Jos. Childers, F. A. Scoles, Walter Wiedeman, Carl Clegg and W. O. Wiedener.

The three low nets for the year went to George J. Jorgensen with 61, 71 and 64.

The election of officers for the coming year resulted as follows:

President, L. L. Graves, Standard Sanitary Mfg. Co.
Vice President, F. O. Piepenbring, W. B. Young Supply Co.
Secretary and Treasurer, B. M. Snook, plumbing contractor.
Handicapper, Walter Wiedeman, U. S. Supply Co.

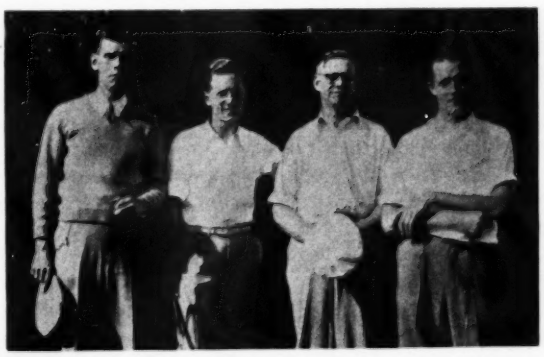
Top row, left to right: W. E. McCollum, secretary-manager of Central Supply Association, Chicago; W. J. Spillane, sales manager, Jas. B. Clow & Sons, Chicago; Wm. J. Hebenstreit, sales manager of the St. Louis branch of Standard Sanitary Mfg. Co., and E. M. McLundie, president, Interceptor Corp., Michigan City, Ind.—Lower row, left to right: Alex L. Grodzensky, district manager for The Kitson Co., Philadelphia; H. H. Engeling, manufacturers' agent, St. Louis; E. H. Graham, manager of Crane Co's. Kansas City branch, and Stephen H. Gilmore, manager of Kohler Co's. branch in St. Louis.—From photographs taken at the recent convention of the Missouri Master Plumbers' Association

P. and H. Club Play San Francisco Course

For the first time in the history of the San Francisco Plumbing and Heating Club and its more than one hundred monthly tournaments held on nearly every course in the bay region, members were accorded the privilege of playing the exclusive San Francisco Golf Club course, on October 18th. It is a solid turf course from the 1st to the 18th, and is rated distinctly sporty, the chief hazards taking the form of dog-legs heavily trapped. President W. A. Taylor was the member-host for the occasion. Topping the "A" men was E. Heieck with a net 70, that likewise earned him title to the Church trophy for the month. Robert Allmon's net 84 was low score in B class. Henry Cantlen, a guest, won the blind bogey.

The scores for the day follow:

	G.	H.	Net		G.	H.	Net
Matthiesen, R. I.	102	(G)	102	Matthiesen, H. R.	98	(G)	98
Packer	88	(G)	88	Cantlen	93	(G)	93
Hall	105	(G)	105	Haun	100	(G)	100
Mosher	102	15	87	Camp	85	11	74
Gabbert	95	18	77	Olsen	124	26	98
Heil	100	15	85	Elliott	90	8	82
Woodson	96	14	82	Taylor	96	15	81
Bogue	98	(G)	98	Scott	81	9	72
Higgins	104	17	87	Mixter	84	9	75
Fuite	94	13	81	Heieck	81	11	70
Bennett	99	(G)	99	O'Hair	103	17	86
Allmon	106	22	84	Greenberg	116	21	95



At the recent tournament of the Plumbing and Heating Club of San Francisco.—Ralph Olsen, E. Heieck, C. W. Higgins and T. B. Mixter

Eastern Trade Golfers Hold Sixth Tournament of the Season

The Eastern Trade Golf Association held its sixth tournament of the season at Tamarack Country Club, Port Chester, N. Y., on Thursday, October 4.

The special prize for low net 36 holes—the John Kjerner silver platter—was won by D. A. McKay with 70 and 74 -144.

The guest prize was won by H. E. Brown.

The winners of the regular medal play prizes and their scores were:

1. C. G. Witherspoon, 114-44-70.—2. Fred A. Fenton, 93-22-71.—3. R. H. Carpenter, 108-37-71.—4. Ernest H. Williams. —5. F. A. Hubert, 87-14-73.—W. H. Murphy, 92-19-73.

The other scores of the day follow:

	G.	H.	Net		G.	H.	Net
H. P. Bartlett	96	23	73	F. A. Murray	91	11	80
John Kjerner	81	7	74	G. E. Olsen	98	18	80
Geo. Allen, Jr.	97	23	74	E. G. Williams	100	20	80
Robert M. Hall	109	34	75	R. W. Meyer	89	7	82
J. C. McDonald	96	20	76	D. W. Hughes	90	8	82
D. H. Rooney	99	23	76	Geo. Scott	98	16	82
T. M. Kellogg	89	12	77	W. H. Driscoll	106	24	82
M. A. Cordner	106	29	77	B. K. Strader	107	24	83
Arthur R. Glore	91	13	78	J. B. Garfield	90	6	84
T. W. Powers	94	16	78	A. F. Hinrichsen	100	16	84
R. H. Smith	94	16	78	Walter Heibel	128	44	84
I. S. Forde	109	31	78	A. T. Miano	109	24	85
C. H. Armstrong	85	6	79	H. D. Jackes	105	20	85
A. Engle	94	15	79	W. C. Mumford	109	21	88
W. T. Rogers	95	16	79	Edw. Bauman	110	21	89
W. H. Carrier	102	23	79	E. F. Glore	121	32	89
S. C. Carrier	85	5	80	E. A. Kerbey	119	29	90
C. L. Klemmer	91	11	80	H. D. Faber	110	14	96

Delaware Valley Trade Golfers Hold Successful Meet In Spite of Rain

The Speakman Co., Wilmington, Del., was the host at the Delaware Valley Trade Golf Association meet held at the Concord Country Club, Concordville, Pa., in September. A heavy rain failed to dampen the spirits of an exceptionally large attendance and, in spite of the wet going, some very good scores were turned in. Approximately ninety members and guests attended the dinner after the meet and President Charles P. Hackett presided at the meeting immediately after.

Willard A. Speakman, president of Speakman Co., gave a short address along with President Hackett, A. V. Gemmill of Speakman Co., Harry Speakman, James Fraser and Fletcher Wright, all of Speakman Co.

In appreciation of the services of President Hackett, the association presented him with a token of their esteem—a check with which to buy an easy chair for his home.

The prize winners in the nine-hole morning round were: Robert Burns, Jr., first prize; Harold Peace, second prize; B. H. Deacon, third prize; J. Squires, fourth prize.

Two sets of prizes were awarded in the eighteen-hole afternoon round, one set to members, and another to guests.

The prize-winning members were: Robert Burns, Sr., first prize; Chas. V. Haynes, second prize; George Lang, third prize; J. Fleming, fourth prize; James Fraser, fifth prize; C. Weber, sixth prize; John Radice, seventh prize; J. F. Wright, eighth prize; Wilson G. Tyler, ninth prize; A. M. Maddock, tenth prize; Raymond Groff, eleventh prize.

The prize-winning guests were: Robert Bowen, first prize; B. C. Reuter, second prize; W. W. Mellon, third prize; Jos. Maston, fourth prize; A. B. Campbell, fifth prize; A. A. Scharnagl, sixth prize; F. H. Escott, Jr., seventh prize; E. L. Petersen, eighth prize; Harry Elliott, ninth prize; W. G. Robelen, tenth prize.

The prizes were donated by the following: Speakman

It's a KOVEN Product

The plumber's friend—get your FREE copy now

The hand-book issued by Koven has always been helpful to the master plumber, but the 1935 edition is the most complete catalog this organization has produced.

The plumber knows by referring to the hand-book just what he will get when ordering a Koven product. Set forth is the size of tank, size of tapping, capacity and working pressures and an outline sketch shows the exact location of the taps. Refer to the page number in the hand-book when placing your order with the jobber.
Every Koven product has the backing of the Koven reputation for quality.

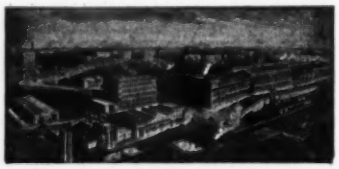
A few of the Koven products:

RANGE BOILERS Galvanized or Copper
SCULLERY SINKS
BARBER BOILERS
KOVEN PARACOIL TANKS

STORAGE TANKS Steel or Copper
FUEL OIL TANKS
EXPANSION TANKS
SEPTIC TANKS

Insist on the best by asking for Koven products from your jobber.

Send for New 1935 Plumbers' Hand-Book.



L. O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

Co., 11 prizes; C. V. Haynes, 2 prizes; Dick Bros., 2 prizes; Delaware Valley Trade Golf Association, 3 prizes. Other donors of prizes were: H. J. Kleinman, Frank L. Wilson, Wilson G. Tyler, C. P. Hackett, Frank Newton, J. W. Worthington and Trenton Potteries Co.

The scores for the afternoon round follow:

	G.	H.	N.
A. B. Campbell (G)	84	5	79
Robert Burns, Jr. (G)	111	22	89
Geo. Lang	97	20	77
Robert Bowen (G)	89	20	69
B. C. Reuter (G)	103	30	73
Robert Burns, Sr.	95	22	73
Edw. C. Benkert (G)	94	10	84
C. L. Weber	97	15	82
Harold Deacon (G)	94	8	86
Jack Squires	104	14	90
A. A. Scharnagl. (G)	96	14	82
Geo. R. Duncan. (G)	116	19	95
S. John Radice.	100	18	82
J. F. Wright	97	12	85
Harold Peace (G)	103	26	77
Richard Pancoast (G)	131	30	101
J. W. Worthington	117	18	99
Wilson G. Tyler.	108	22	86
W. Jackson (G)	135	30	105
Harry Moore (G)	139	25	114
John H. Moore (G)	140	23	117
A. S. Norton	118	18	100
T. E. Thomas (G)	104	18	86
J. Nurney (G)	106	22	84
C. V. Haynes	100	26	74
M. F. Pilger	176	30	146
B. J. McNally. (G)	159	30	129
D. Moore (G)	119	30	89
Frank Newton	124	24	100
R. F. Kleinman.	105	8	97
R. Groff	102	14	88
J. A. Dwyer	110	18	92
E. L. MacWhorter.	110	18	92
A. A. Granke. (G)	120	20	100
H. Escott (G)	98	16	82
E. Fleetwood (G)	111	20	91
Brewton (G)	112	24	88
J. A. Doody	148	30	118
Brad. Jones (G).	146	30	116
J. Fleming	89	10	79
W. Mellon (G)	101	25	76
J. Maston (G)	103	25	78
W. Speakman (G)	114	20	94
Harry Elliott (G)	99	15	84
Wm. Robelen (G)	111	24	87
Dallert (G)	94	12	82
Sauter (G)	94	10	84
Butler (G)	113	24	89
J. Fraser	97	16	81
A. M. Maddock.	105	18	87
E. L. Petersen.	98	16	82
A. W. Hale (G).	110	..	..
R. D. Knight.	115	24	91
W. M. Hill.	116	24	92

Dolan and Olson—

(Continued from page 51)

And that is one idea that looks good to Me and Hank.

Hank just got back from a job. A big restaurant complained of sewer gas. The handy man (combination fitter, plumber, electrician, machinist, carpenter, painter and what have you) had rodded out the sewer line in three different places and in so doing had spoiled the threads on the clean-out tapping. He solved the immediate problem by laying the end of a tin can over each opening. It concealed the opening, but was not at all tight.

The re-circulating cooling system did the rest. It picked up that foul smelling sewer air and carried it throughout the restaurant, and it became so noticeable that both customers and employees commented on it.

They looked for openings in the sewer pipes that would admit sewer gas, but neglected to consider the make-shift covers on the clean-out fittings.

The result was a hurry-up call. Hank answered it, found the trouble, replaced the tin plates with cast iron repair covers, and their troubles were over.

Me and Hank are wondering how many other places there are where the owner, tenant or handy man has removed the covers and then made a make-shift repair.

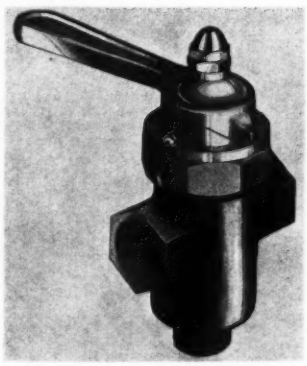
Plenty of 'em, I'll bet, but hardly possible to check them until some one gets a nose test.

Edward R. Anderson, vice-president of the Golden-Anderson Valve Specialty Company in Pittsburgh, Pa., died recently in an automobile accident near that city. Mr. Anderson was in his 59th year at the time of his death.

NEW STORE·SHOP and JOB ITEMS

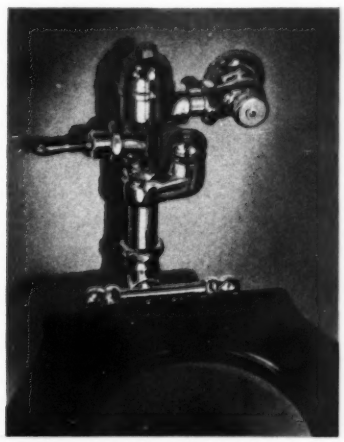
New Cleaning Valve

The cleaning valve illustrated here has just been placed on the market for the purpose of removing sediment from the heater, tank and piping in domestic hot water supply systems. It is designed so that by turning the handle to either of the two cleaning positions indicated on the dial, one-half of the system is flushed out under pressure while the opposite side is closed off. For example, when the valve handle is turned to the point "clean heater," the cam arrangement of the handle lifts the stem of the valve to open the drain, and at the same time, closes the pipe opening on the side of the valve marked "clean tank." By reversing the operation, the opposite side of the system likewise is flushed out under pressure. This cleaning valve is described as not being of the ground key type but is built somewhat on the lines of a spring faucet. Also, it is described as turning easily and as being serviced as easily as a faucet. The body of the valve is finished in brushed brass while the handle and cam is chromium plated. Another feature mentioned in regard to this valve is the adjustable stem which is designed to permit compensation for wear on the drain washer. Excelso Products Corporation, 65 Clyde Avenue, Buffalo, N. Y., is the manufacturer.



Vacuum Breaker Is Introduced

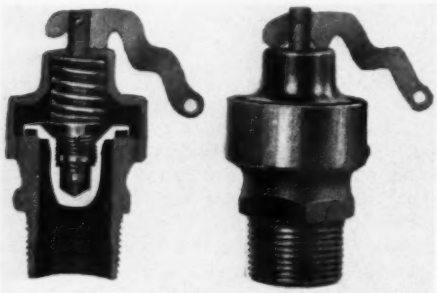
The vacuum breaker illustrated here has just been introduced for the purpose of preventing back syphonage. It is provided with what is rated as a full 1 in. opening to the atmosphere and is designed not to be closed except when the flush valve is flushing. The idea is to maintain atmospheric pressure at the spud of the fixture at all times so as to prevent a vacuum from reaching the spud. The design is made to prevent a slow, sudden, short or long vacuum of any degree from causing back syphonage. As for the air valve, this is made to close instantly at the slightest flow of water. It is kept seated tightly during the flush by, (1) the flow of water on the disc end of the lever and (2) by the water pressure on the lower side of the air valve. It is pointed out that the air valve cannot stick from disuse in that normally it is open. After a flush it is opened mechanically, (1) by its weight and (2) by the partial vacuum at the end of each flush. The opening to the air is designed so that it cannot be stopped up easily even with malicious intent. It is pointed out that the smallest opening in the syphon breaker is much larger than the maximum opening through any operating flush valve, with the idea that nothing that will go through the flush valve can clog the syphon breaker. This equipment is designed so that it can be used in connection with any make of flush valve or any type of closet bowl and to prevent back syphonage regardless of the condition of the flush valve. Sloan Valve Company, 4300 W. Lake St., Chicago, Ill., is the manufacturer.



Protection Device for Steam Boiler

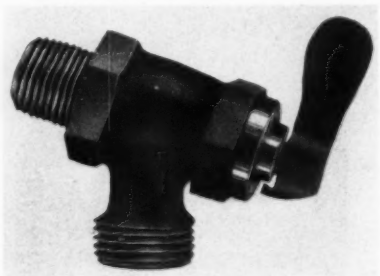
Here is a new pop safety valve which has just been placed on the market. It is described as being built entirely of brass except for an oil tempered pressure spring which is especially treated. The idea is to protect the entire assembly against the effects of corrosion. All of the working parts are described as being precision machined to close tolerances. The valve functions as a result of the line pressure rising above that for which the valve is set to pop off and as soon as this pressure is relieved the valve

is made to close promptly. Positive shutoff is designed for it by the action of the pressure spring on the disc below the seat. This valve is described as meeting the A.S.M.E. specifications for low pressure steam (15 lbs.). It may be turned in any position with regard to the center line of the pipe and it may be opened manually either by lifting the control lever or by pressing it down. The Consolidated Brass Company, 139 Summit Street, Detroit, Mich., is the manufacturer.



Boiler Drain and Relief Valve

Just recently placed on the market, the valve shown in the accompanying illustration has been made for the combination of safety and utility on domestic water heating tanks. This valve is set in the factory and is designed to relieve the pressure at the highest number (lb.) marked on the bonnet dial. The indicator handle points to the pounds pressure at which the valve will relieve. When it is desired to drain the tank, the handle merely is turned full open and when the valve is closed, the handle may be returned to the desired pressure point for pressure relief. The manufacturer is the Kitson Company, Westmoreland and Stokley Streets, Philadelphia, Pa.



New Ring for Sewer Joints

The ring shown here in place in the hub of a sewer pipe, has just been announced as providing a means of preventing roots from entering sewers. It has been designed on the basis that even the slightest leak in a sewer pipe joint causes any roots in the vicinity to be attracted, by the moisture and fertility of the sewage, directly to the point of leakage. The hair-like feeder roots thus penetrate the opening and enter the sewer pipe with a consequent obstruction in the line if not a complete stoppage. The ring in question is inserted in the bell of each joint of sewer pipe when the pipe is laid. After the ring is in place, the joint is cemented in the customary manner. It is pointed out that the rings in question are made of pure copper which, when acted upon by sewage, develop what is described as a corrosive field of poisonous copper salts through which the root hairs of an advancing root are unable to penetrate. It is further pointed out that the paralyzing action of the

ring is limited entirely to the very fine feeders which must precede any growing root without harming the tree or plant. These rings are furnished not only in domestic sizes but in municipal and commercial sizes. A-B-C Manufacturing Co., located at 221 South Fourth Street, Quincy, Ill., is the manufacturer.

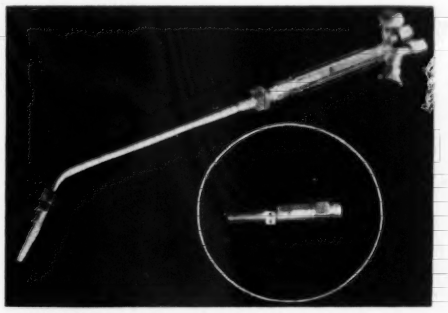
Liquid for Stopping Leaks

Three features are claimed for a liquid just recently placed on the market to be used in repairing broken, cracked or leaking boilers. First, it is described as capable of searching out the leak; second, it is made to plug it; third, the heat bakes it into a permanent repair. It is designed for use in connection with both steam and hot water heating boilers. Liquid Veneer Corporation, of Buffalo, N. Y., is the manufacturer.

A New Blow Pipe Head

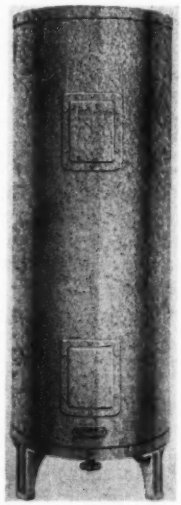
A new blow pipe head which just has been announced is shown in the accompanying illustration. It is for pipe welding. It consists of a special chromium plated stem and tip available in three sizes, their use depending upon the pipe size. The design of the tip is such as to give three flames; a main welding flame and two smaller auxiliary flames, the latter so positioned as to preheat both edges of the Vee ahead of the point of welding. By preheating the material to be

welded, it is claimed that better welding time can be obtained with a reduction in the amount of rod and gases used. The Linde Air Products Company, 205 East 42nd St., New York City, is the manufacturer.



New Electric Water Heater Announced

Announcement has just been made of a new electric water heater. Some of the features listed for this equipment include a new type thermostat for adjustable automatic temperature control; a hermetically sealed looped hairpin heating element with provisions for the addition of another



heating element for larger capacities and a crinkled finish which is designed not to chip, crack or craze. This 30 gal. heater is provided with a new insulating material and is described as being especially suitable for domestic use. Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa., is the maker.

Parson Bros. Have Expanded Their Business

Parson Bros. of 31-37 East Washington Avenue, Bridgeport, Conn., who have been wholesalers in sheet metal and a few plumbing supplies, have rounded their business to cover plumbing and heating supplies, including enamel ware, brass goods, etc.

NEW Radiator Traps from OLD with SARCO Replacement Units

Sarco Adapters give new life to old radiator traps of any make. They make radiators heat rapidly and evenly so that ample heat will be furnished with greatly reduced steam pressure.

Old radiator or drip traps equipped with Sarco Adapters are guaranteed equal to new in steam saving efficiency.

Sarco Adapters consist of a cap and a motor element. The cost is low, as you use the old bodies and do not have to disturb pipe connections.

Now is the time to modernize — a Sarco Adapter to fit every trap body and a Sarco Packless Valve Bonnet for all makes of Inlet Valves.

Tell us the make of heating system and we will send full information. Ask for Catalog M-111.

SARCO CO., Inc.

183 Madison Ave., New York, N. Y.

Branches in Principal Cities

SARCO CANADA, LTD.

Federal Bldg., Toronto, Ont., Canada

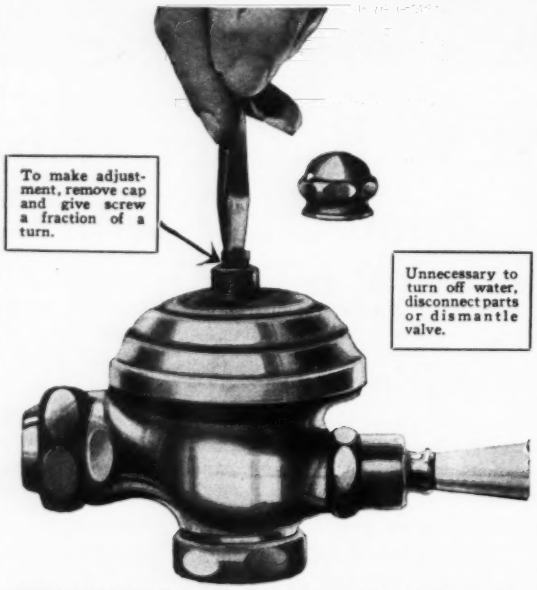
Also makers of Sarco Radiator Traps, Packless Inlet Valves, Combination Float and Thermostatic Traps, Return Traps, Air Eliminators, Steam Traps, Temperature Regulators and Strainers.

Nothing Simpler

The Quick Adjustment of the

Watrous

FLUSH VALVE


To make adjustment, remove cap and give screw a fraction of a turn.
Unnecessary to turn off water, disconnect parts or dismantle valve.

REGULATION of the length of flush in all Watrous valves is only a matter of a few seconds. In the Majestic type, shown above, dependable action is aided by the size of the diaphragm, which is 25 per cent larger than in the average diaphragm valve. This is an important feature under exacting low pressure service.

IMPERIAL FLUSH VALVE

Another dependable Watrous valve (piston type), is shown on the left. As in all Watrous valves, the bypass is thoroughly cleansed at each flush. The complete travel of the piston assures a full waterway, so that the flow is sufficient to flush the fixture thoroughly.

Write for Plumbing Catalog No. 433

Genuine Watrous replacement parts assure trouble-free operation

IMPERIAL BRASS MFG. CO.
1231 West Harrison St., CHICAGO

Edw. Steinman Opens Office as Manufacturers' Representative

Edward Steinman, formerly president of the Metropolitan Jobbers Association, New York City, has engaged in business as a manufacturers' representative, with offices at 154 Nassau Street, New York City. Mr. Steinman will represent the following companies: M. L. Oberdorfer Brass Co., Syracuse, N. Y.; The Rickersberg Brass Co., Cleveland, Ohio; William P. Laytham & Son Co., Inc., Paterson, N. J., and White Metal Rolling & Stamping Corp., Brooklyn, N. Y.

N. E. Metal Products Golfers Meet on the Shore of Narragansett Bay

The New England Metal Products Golf Association held its regular monthly tournament at Rhode Island Country Club, near Providence, on Thursday, October 4, with an attendance of 31 members and guests.

The course, one of the finest in America, was in excellent condition. It has five water holes, of which two or three are alongside of the Narragansett Bay.

The host of the day was George Phillips of the Phillips Lead and Supply Company of Providence, and under his direction the meeting was a distinct success.

President Robert McKeown, Jr., presided at the dinner which was served at 6:30.

The prizewinners and their scores follow: Ralph E. Greenlaw, 92—15—77; Warner B. Day, 89—3—86; William Hayes, 92—5—87; Morris E. Lynch, 99—9—90; Robert McKeown, 93—1—92; Morgan G. Chamberlain, 124—21—103.

The association voted to accept the invitation of Warner B. Day to hold the next tournament, the last one this year, at the Salem Country Club at Salem, Mass. This course is located 15 miles from Boston, and it is expected that every member of the association will be in attendance.

P. & H. Club Holds "Golf-Swim-Ament"

A distinct novelty in the shape of outings drew a splendid attendance when the Plumbing and Heating Club of San Francisco gathered at the noted Olympic Club September 27th, for golf, swimming and a banquet meeting. They called it a "Golf-Swim-Ament."

Perfect weather and a sporty course drew liberal representations from every branch of the industry. Earl Heieck topped the class A division with a net 71, while W. P. Wooldridge turned in a 70 card among class B entries. F. G. Harmon copped the iron trophy with a high gross of 117. The Olympic club being one of the few organizations possessing two courses enjoying high professional ratings—the ocean course and the lake course—the Plumbing and Heating Club was given its choice, and elected to play the former.

At the 19th hole, the golfers were joined by additional members who drove out for the banquet, when the swimming events were staged at the indoor pool immediately in front of the bar. Back-stroke racing, underwater racing and fancy diving were popular high lights of the swimming meet, as demonstrated by J. V. Young, R. J. Fuite, E. Heieck, W. P. Wooldridge and W. P. Scott. Jack Camp contributed a famous flip-flop. The golf scores were:

	Gross	Hdcp.	Net		Gross	Hdcp.	Net
Olsen	109	25	84	Higgins	92	17	75
Heieck	83	12	71	Mixter	89	8	81
Elliott	84	7	77	Woodson	93	15	78
Camp	86	12	74	Fuite	92	13	79
Aitchison	120	(G)	120	Harmon	117	35	82
Scott	87	9	78	Wooldridge	97	27	70
Lane	101	27	74	Ahern	110	(G)	110
Brace	116	(G)	116	Allmon	101	21	80
Drucker	120	(G)	120	Clark	93	15	78
Klimm	92	13	79				

Wholesalers Code—

(Continued from Page 66)

such other Codes as may be related to the industry for the purpose of formulating fair trade practices to govern the relationships between employers under this Code and under such other Codes to the end that such fair trade practices may be proposed to the Administrator as amendments to this Code and such other codes.

(i) To provide appropriate facilities for arbitration. and subject to the approval of the Administrator, to prescribe rules of procedure and rules to effect compliance with awards and determinations.

SECTION 7. If the Administrator shall determine that any action of the Code Authority or of any Regional Code Committee or any agency thereof may be unfair or unjust or contrary to the public interest, the Administrator may require that such action be suspended to afford an opportunity for investigation of the merits of such action and further consideration by the Code Authority or agency pending final action, which shall not be effective unless the Administrator approves or unless he shall fail to disapprove after thirty (30) days' notice to him of intention of proceed with such action in its original or modified form.

SECTION 8.—EMPLOYMENT REPORTS.

(a) Each employer in this industry shall furnish, to a confidential agent of the Code Authority, when required by the Code Authority, on forms to be furnished by said Code Authority, a sworn report of the number of persons employed, wage rates in effect, and hours worked in his plant or plants, classified by occupations, together with such other sworn employment reports as the Code Authority may require from time to time.

(b) Individual reports shall not be available to anyone except the Administrator and the representatives of the Code Authority (who shall not be in the employ of any member of this industry), provided, however, that in the event of a complaint, the Code Authority may require all information pertinent to such complaint. Total figures compiled from such reports shall be available to members of the industry.

ARTICLE VII. TRADE PRACTICES

The following practices constitute unfair methods of competition for members of the Industry and are prohibited:

SECTION 1. (Discrimination)

Discriminating in prices, terms, discounts, allowances, guarantees, or in any other way, between purchasers of the same class, who purchase in like quantity.

SECTION 2. (Split Shipments)

Except for a specific building operation, delivering only portions or orders taken at a quantity price with the intent, or having the effect of violating published prices.

SECTION 3. (Delivery Charges)

Where the published price provides for an extra charge for parcel post, cartage, or other transportation, failing to make such charge.

SECTION 4. (Rebates)

Paying or allowing rebates, refunds, commissions, credits, unearned discounts, whether in the form of money or otherwise, or extending to certain purchasers special prices, services, or privileges not extended to all purchasers of the same class on like terms and conditions.

SECTION 5. (Fictitious Dating or Invoicing)

Post-dating or pre-dating of quotations, orders, invoices, statements or other sales documents; making fictitious quotations or invoices, or the entering of fictitious orders.

SECTION 6. (Inducing Breach of Contract)

Inducing or attempting to induce the breach of a contract between a competitor and his customer during the terms of such contract; provided, however, that nothing in this rule shall prevent a member of the industry who has quoted on the material involved from calling to the attention of the purchaser, even though the order has been placed and accepted, that the list of materials for which the order has been placed does not conform in size, quantity or quality to the materials on which the quotations were solicited.

SECTION 7. (Repudiation of Contracts)

Repudiating or attempting to conceal accepted orders, except for legal cause or by mutual consent for the purpose or with the effect of avoiding the provisions of Article VIII, Section 2.

SECTION 8. (Lump Sum Bidding.)

Quoting a total price on any schedule of plumbing products, heating products and/or pipe, fittings and valves, which does not show unit prices, or adding to or deducting from any such schedule on any other basis than the unit price shown. This shall not be construed to prohibit quantity discounts applying to units.

SECTION 9. (False Marking or Branding.)

The false marking or branding of any products of the Industry which has the tendency to mislead or deceive customers or prospective customers, whether as to nature, origin, size, finish, grade, quality, quantity, substance, character or preparation of any product of the Industry, or otherwise.

SECTION 10. (Misrepresentation or False or Misleading Advertising.)

Making, causing or knowingly permitting to be made or published, any false, materially inaccurate or deceptive statement by way of advertisement or otherwise, whether concerning grade, quality, quantity, substance, character, nature, origin, size, finish, or preparation of any product of the industry or credit terms, values, policies, or services of any member of the industry, or otherwise, having the tendency or capacity to mislead or deceive customers or prospective customers.

SECTION 11. (Substitution.)

Furnishing without the consent of the purchaser articles of more or less expense, of better or inferior quality, or of larger or smaller size than specified and without making the proper adjustment in the quoted price and clearly indicating the nature of the substitution.

SECTION 12. (Defamation.)

Defaming competitors, customers or prospective customers by falsely imputing to them dishonorable conduct, inability to perform contracts, questionable credit standing, or by other false representations or by the false disparagement of the grade or quality of their goods.

SECTION 13. (Commercial Bribery.)

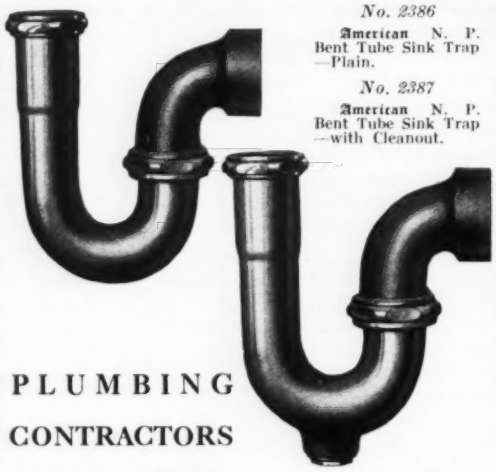
Giving, permitting to give, or directly offering to give anything of value, for the purpose of influencing or rewarding the action of any employee, agent, or representative of another in relation to the business of the employer of such employee the principal of such agent or the represented party, without the knowledge of such employer, principal or party. This provision shall not be construed to prohibit free and general distribution of articles commonly used for advertising except so far as such articles are actually used for commercial bribery as hereinabove defined.

SECTION 14. (Protection.)

Selling or offering to sell products of the industry under any form of guaranty to a purchaser or prospective purchaser against either advance or decline in the price of said products, except for a specific project, or when a contract of sale for future delivery is made for a definite quantity of such products, at a definite delivery date.

SECTION 15. (Threats of Litigation.)

Publishing or circulating threats of suits for infringement of patents or trade marks, or of any other legal proceedings



No. 2386
American N. P. Bent Tube Sink Trap —Plain.

No. 2387
American N. P. Bent Tube Sink Trap —with Cleanout.

PLUMBING CONTRACTORS HAVE LEARNED TO

EXPECT MORE

FROM THIS *SUPERIOR* LINE

★

EVER since the line was first introduced . . . nearly a quarter of a century ago . . . plumbing contractors, the country over, have found that they could *expect more* . . . more in the way of quality . . . more in the way of design . . . more in the way of performance . . .from the **American** Brass Goods Line. They have found, in countless installations, that **American** Brass Goods stands up *best* where ordinary materials fail.

Two shining examples of **American** superiority are pictured above. No more suitable sink trap is available to the trade than the No. 2386 or the 2387. Contractors anxious to do a job that will reflect their own ability and workmanship will do well to specify **American** Sink Traps . . . to standardize on **American** Brass Goods. Order **American** Brass Goods through your jobber.

AMERICAN SANITARY MFG. CO.
ABINGDON ILLINOIS

★

★ **American** ★
QUALITY BRASS GOODS

not in good faith, with the tendency or effect of harassing competitors or intimidating their customers.

SECTION 16. (Espionage of Competitors.)

Securing confidential information concerning the business of a competitor by a false or misleading statement or representation by a false impersonation of one in authority, by bribery, or by any other unfair method.

SECTION 17. (Sales at Wholesale Selling Level.)

Selling, or offering to sell, plumbing products or heating products at wholesale prices to other than plumbing contractors, heating contractors, retail divisions, branches or stores; or institutional, commercial and/or industrial users as hereinbefore defined.

SECTION 18. (Quotations.)

When quoting prices for a specific building operation and including a clause which provides for the acceptance of such prices within a specified time, allowing the quotation to remain in effect after the time allowed for acceptance has expired.

SECTION 19. (Plans, Specifications, Estimating.)

Rendering engineering services (which shall not include estimating), without remuneration to cover the actual cost of such service; or estimating quantities, types, sizes, or quality of products of the industry inaccurately with the intent and effect of misleading or deceiving customers or prospective customers.

SECTION 20. (Second Hand Material.)

Selling used or damaged plumbing products, heating products, and/or pipe, fittings and valves in the same place of business where the products are sold without segrating such used and damaged products and clearly identifying same as such.

ARTICLE VIII. MARKETING POLICIES AND DISTRIBUTION.

SECTION 1. (Invoices.)

All sales shall be invoiced at the time of shipment, and such invoices together with credit memoranda and all other documents relating to the sale shall clearly and accurately state all of the essential elements of the sale, including types and sizes of products, quantities, prices, credit terms, discounts, allowances, date of order, date of acceptance, date of shipment and other pertinent information. Copies of invoices together with credit memoranda and all other sales documents, shall be available to representatives of the Code Authority who shall not be in the employ of any member of the industry as and when directed by the Code Authority, and in the event of a complaint true copies of invoices, credit memoranda and all other sales documents shall be sent immediately to the Code Authority upon its request.

SECTION 2. (Published Prices.)

(S) Each member of the industry shall file with a confidential and disinterested agent of the Code Authority, identified lists of all his prices, discounts, rebates, allowances and all other terms or conditions of sale or transfer, hereinafter in this Article referred to as "price terms," which lists shall completely and accurately conform to and represent the individual pricing practices of said member. Said price terms shall in the first instance be filed within thirty (30) days after the effective date of this Code. Price terms and revised price terms shall become effective ten (10) days after receipt thereof by said agent. Immediately upon receipt thereof said agent shall by telegraph or by other equally prompt means notify said member of the time of such receipt. Such lists and revisions, together with the effective time thereof, shall upon receipt be immediately and simultaneously distributed to all members of the industry and to all of their customers who have applied therefor and have offered to defray the cost actually incurred by the Code Authority in preparation and distribution thereof and be available for inspection by any such customers at the

office of such agent. Such lists shall contain the price terms for all plumbing products, heating products and pipe, fittings and valves as are sold or offered for sale by said member. Said lists or revisions or any part thereof shall not be made available to any person until released to all Members of the Industry and their customers, as aforesaid: Provided, that prices filed in the first instance shall not be released until the expiration of the aforesaid thirty (30) days period after the approval of this Code. The Code Authority shall maintain a permanent file of all price terms filed as herein provided, and shall not destroy any part of such records except upon written consent of the administrator. Upon request the Code Authority shall furnish to the Administrator or any duly designated agent of the Administrator copies of any such lists or revisions of price terms.

(b) When any member of the industry has filed any revision, such member shall not file a higher price within forty-eight (48) hours.

(c) No member of the industry shall sell or offer to sell any products of the industry except in accordance with such filed priced terms.

(d) No member of the industry shall enter into any agreement, understanding, combination or conspiracy to fix or maintain price terms, nor cause or attempt to cause any Member of the Industry to change his price terms by the use of intimidation, coercion, or any other influence inconsistent with the maintenance of the free and open market which it is the purpose of this Article to create.

SECTION 3. The following practices specifically are violations of Section 2 of Article VIII:

(a) Publishing false or fictitious price lists.

(b) Issuing price bulletins to customers, salesmen, price clerks, or to branches, divisions, or affiliates of any member of the industry performing retail functions containing other than the prices covering such sales, transfers or deliveries, which shall have been published as price lists under the preceding section.

SECTION 4. Subject to the approval of the Code Authority and the disapproval of the Administrator, the Regional Code Committee of a trading area may classify certain products as obsolete. In such instances the published prices shall carry the notation and invoices for such products shall plainly show the following wording: "Special prices on account of close-out."

SECTION 5. (Cost Finding.)

The Code Authority shall cause to be formulated methods of cost finding and accounting capable of use by all members of the industry and shall submit such methods to the Administrator for review. If approved by the Administrator, full information concerning such methods shall be made available to all members of the industry. Thereafter, each member of the industry shall utilize each method to the extent found practicable, but if any member of the industry fails to utilize such methods, such member shall make a full disclosure to the Code Authority of the methods actually employed. If no method of cost finding or accounting is used by a member of the industry he shall so advise the Code Authority. Nothing herein contained shall be construed to permit the Code Authority, or any agent thereof, or any member of the industry to suggest uniform additions, percentages or differentials, or other uniform items of costs which are designed to bring about arbitrary uniformity of costs or prices.

SECTION 6. (Plumbing and Heating Products.)

Any member of the industry who is also a member of any other industry shall conduct his business in this industry separately from his business in any other industry, and with a separate system of accounting therefor. It shall constitute unfair competition for any member of this industry, who is also a member of either the retail division of the plumbing industry or of the retail division of the heating industry, to sell, assign or transfer plumbing products and/or heating products from his business in this industry to his business in the retail division of the heating industry at prices other than as published in accordance with Section 2 of this Article.

SECTION 7. (Costs and Price Cutting.)

The standards of fair competition for the industry with reference to pricing practices are declared to be as follows:

(a) Wilfully destructive price cutting is an unfair method of competition and is forbidden. Any member of the Industry or of any other industry or the customers of either may at any time complain to the Code Authority that any filed price constitutes unfair competition as destructive price cutting, imperiling small enterprises or tending toward monopoly or the impairment of code wages and working conditions. The Code Authority shall within five (5) days afford an opportunity to the member filing the price to answer such complaint and shall within fourteen (14) days make a ruling or adjustment thereon. If such ruling is not concurred in by either party to the complaint, all papers shall be referred to the Research and Planning Division of National Recovery Administration which shall render a report and recommendation thereon to the Administrator.

(b) When no declared emergency exists as to any given product, there is to be no fixed minimum basis for prices. It is intended that sound cost estimating methods should be used and that consideration should be given to costs in the determination of pricing policies.

(c) When an emergency exists as to any given products, sale below the stated minimum price of such product, in violation of Section 8 hereof, is forbidden.

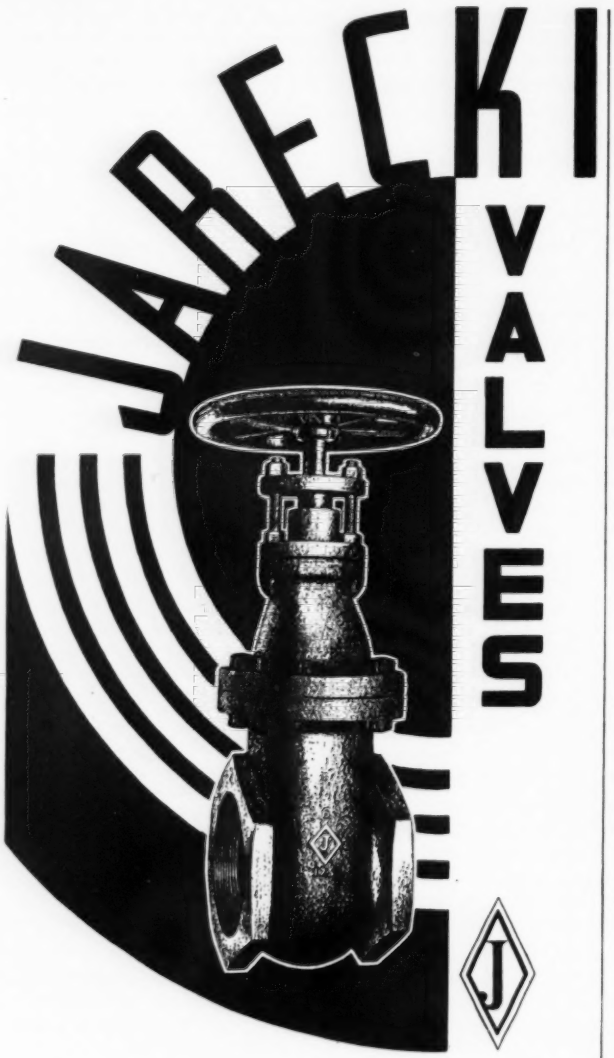
SECTION 8. (Emergency Provisions.)

(a) If the Administrator, after investigation, shall at any time find both (1) that an emergency has arisen within the Industry adversely affecting small enterprises or wages or labor conditions, or tending toward monopoly or other acute conditions which tend to defeat the purposes of the Act; and (2) that the determination of the stated minimum price for a specified product within the Industry for a limited period is necessary to mitigate the conditions constituting such emergency and to effectuate the purposes of the Act, the Code Authority may cause an impartial agency to investigate costs and to recommend to the Administrator a determination of the stated minimum price of the product affected by the emergency and thereupon the administrator may proceed to determine such stated minimum price.

(b) When the Administrator shall have determined such stated minimum price for a specified product for a stated period, which price shall be reasonable calculated to mitigate the conditions of such emergency and to effectuate the purposes of the National Industrial Recovery Act, he shall publish such price. Thereafter, during such stated period, no member of the industry shall sell such specified products at a net realized price below said stated minimum price and any such sale shall be deemed destructive price cutting. From time to time, the Code Authority may recommend review or consideration or the Administrator may cause any determinations hereunder to be reviewed or reconsidered and appropriate action taken.

ARTICLE IX. MODIFICATION.

This Code and all the provisions thereof are expressly subject to the right of the President, in accordance with the provisions of sub-section (b) of Section 10 of the National Industrial Recovery Act, from time to time to cancel or modify any order, approval, license, rule or regulation issued under Title I of said Act and specifically, but without



Every type of valve that your needs may call for; every refinement that experience has proved practicable; every improvement that makes for longer and more economical service—will be found in this sturdy and time-tested line. We welcome your inquiries.

JARECKI
MANUFACTURING COMPANY
Erie, Pa.

limitation, to the right of President to cancel or modify his approval hereof.

ARTICLE X. MONOPOLIES.

No provision of this Code shall be so applied as to permit monopolies or monopolistic practices, or to eliminate, oppress, or discriminate against small enterprises.

ARTICLE XI—EFFECTIVE DATE

This Code shall become effective on the tenth day after its approval by the President.

Wm. Schulmerich Dies in His 60th Year

William Schulmerich, sales representative for the John Wood Mfg. Co., Richmond Hill, N. Y., died on Sunday morning, September 16th, in his 60th year. Previous to his connection with the John Wood Mfg. Co., he was associated with Henry B. Geddes, manufacturers' representative of East Orange, N. J., and before that he was for more than thirty years connected with L. O. Koven & Bro. of Jersey City, being secretary and sales manager when he severed his connection in 1928. Mr. Schulmerich made his home in Brooklyn, N. Y., with his sister who survives him.

Daniel B. Badger Called by Death

Daniel B. Badger, chairman of the board of directors and retired president of the E. B. Badger & Sons Company of Boston, Mass., died at his home in Winchester, Mass., on October 2, in his 85th year. Mr. Badger was born in Boston and was connected with the Badger Company 68 years. Until the beginning of the summer, Mr. Badger was active in the business of the company and was at his office every day. A short time ago he became ill and failed rapidly. He was a director of the Winchester Savings Bank, president of the Home of Aged Couples in Roxbury, and a past president of the Master Builders Association. He also was a member of the Masonic fraternity. He is survived by his widow and three sons.

A. S. Frampton Dies from Fall

A. S. Frampton, until 1920 well known in plumbing supply circles in the Middle West, died October 1st at his home in Webster Groves, Mo., a suburb of St. Louis, in his 58th year. The immediate cause of his death was a cerebral hemorrhage following a fall at his home a few days before, but he had for several years suffered from Malta fever. Mr. Frampton, known to his innumerable friends as "Al" Frampton, was one of the original "pipe men" of the Middle West, and he was known in all parts of the country. He began his business career in 1898 with A. M. Byers Co. of Pittsburgh, Pa. In 1903 be became assistant general sales manager of the old Wheeling Steel & Iron Company of Wheeling, W. Va., and from 1905 to 1920 he was manager of sales at Chicago for this concern. Since 1920 he had been engaged in the automobile business at St. Louis.

M. C. Doran Dies of Automobile Injuries

M. C. Doran, sales manager of the U. S. Supply Company of Kansas City, Mo., died October 8 at St. Luke's hospital in that city in his 61st year. His death was caused by injuries received Sunday night, September 30, when he was struck by a motor car while crossing a road. For a while his injuries, which consisted of a broken leg and injuries to his head and pelvic arch, did not appear fatal, but infection and pneumonia set in and caused his death. Mr. Doran was born in Kansas and had been connected with the U. S. Supply Company for thirty years, the last ten years as sales manager. His widow and a daughter survive him.

THE TRADE

News of what plumbing and heating contractors are doing the country over

N. A. M. P. Directors to Hold First Meeting

President John J. Calnan of the National Association of Master Plumbers has called the board of directors of that association together for its first meeting. The meeting will be held at the Mayflower Hotel, Washington, D. C., Nov. 21-22.

In addition to President Calnan, Vice-President George W. Frank of Buffalo, Treasurer H. O. Green of Tulsa, Okla., and Secretary Chas. E. Gawne of Chicago, the board includes: Robert J. Barrett, Washington, D. C.; P. W. Donoghue, Boston; E. B. Kleine, Cincinnati, Ohio; D. A. Mayfield, Jacksonville, Fla.; L. J. Kruse, Oakland, Calif.; J. J. Shanahan, Norfolk, Va.; Jere Sheehan, Jr., St. Louis; James Smyth, Spokane, Wash.; R. G. Thomas, San Antonio, Tex.; George H. Werner, Orange, N. J., and Walter C. Williams, Wilkes-Barre, Pa.

Joseph G. Hildebrand, Washington, D. C., is executive secretary and Peter M. Munn, Chicago, is secretary to the president.

Illinois Plans State Convention for January

The directors of the Illinois Master Plumbers' Association have decided to hold its 42nd annual convention in January, 1935, at Springfield, Ill. The exact date will be chosen later.

The directors of the Illinois association are Henry P. Reger, of Chicago, president; J. A. Van Nattan, of Springfield, first vice president; Fred R. Bailey, of Rockford, past president; William F. Hildeman, of Chicago Heights, treasurer. William R. Brookman, of Chicago, is executive secretary.

Survey Shows Buffalo Needs Modern Plumbing and Heating

A survey on real estate in Buffalo, N. Y., made by the Buffalo Planning Board with the use of CWA and ERB funds, shows that out of 93,542 buildings in the city, heating apparatus is employed as follows: hot air, 64,953; steam, 5,497; hot water, 10,133; stoves, 62,237; other 49; none 23.

From a plumbing point of view some other interesting facts were revealed. Two percent of the homes possess no water closets. Only 29.4 percent of the buildings are in good condition, 58.2 percent need minor repairs, 12 percent need structural repairs and .4 of one percent are unfit for use. Only 2.1 percent of the buildings are under 5 years old; 12.5 percent are from 6 to 10 years old, 11.2 percent are from 11 to 15 years old, 8.9 percent from 16 to 20 years old, 13.9 percent from 21 to 30 years old and the remaining 51.4 percent are 30 years old or more.

A total of 13.6 percent have running cold water only; 86.2 percent have running hot and cold water, and the remaining .1 of 1 percent are without either running cold or hot water. Mechanical refrigeration is used by 18.1 percent of the units. A bathtub or separate shower is included in the equipment of 85 percent of the units, while 1.4 percent possess two bathtubs, .7 of 1 per cent possess three or more and 12.9 percent have none.

N. J. Master Plumbers Will Hold Quarterly Convention Nov. 21

New Jersey Master Plumbers Association will hold its second quarterly convention in the United Singers Park at Springfield, N. J., on Wednesday, November 21.

President Edmund P. Ingram says that many important matters will be brought before the convention, and he is hoping for a 100 per cent attendance. As it will be an "open meeting" every master plumber in the State of New Jersey is invited to attend.

Plumbers in Hudson and Bergen Counties, N. J., Hear Talk on Plumbers' Code

The New Jersey Divisional Code Authority for the Plumbing Contracting Industry held a meeting on Thursday evening, October 11, at Kean's restaurant, Union City, N. J., to present to the local plumbing contractors the picture of the federal code, its details and methods of enforcement. About 85 contractors attended from Hudson and Bergen counties.

Arthur H. Andrews, executive vice president of the Chamber of Commerce of Northern Hudson County, and North Hudson NRA chairman, presided, and introduced E. P. Ingram of Jersey City, president of the New Jersey Master Plumbers' Association, who is state director of the code.

While the code was adopted June 4, last, its enforcement has been delayed until necessary collections could be made among the membership for that purpose. Collectors are now in that section, authorized to obtain an initial $5 assessment, deductible from the annual assessment, which is fixed as one-fourth of one per cent of the gross income of 1933.

Mr. Ingram explained the code in detail, and answered questions. He explained the depository bids, permissible bargaining agreements with journeymen, and assessments.

Geo. O. Toepfer Starts Code Administration Activities in Wisconsin

George O. Toepfer of Milwaukee, Wisconsin, state executive of the Divisional Code Authority, and Peter J. King of Milwaukee, state local agent, have been visiting all code compliance committees in the state for the purpose of organizing these committees and inaugurate code administration throughout the state. The cities visited and in which members of the code compliance committees met with Messrs. Toepfer and King were as follows: Milwaukee, Racine, Watertown, West Bend, Platteville, La Crosse, Eau Claire, Barron, Superior, Merrill, Marinette and Appleton.

Bayonne, N. J., Master Plumbers Start Educational Campaign

The Master Plumbers' Association of Bayonne, N. J., has recently inaugurated an advertising and publicity campaign for the purpose of convincing home owners in that city and vicinity of the sanitary and economical advantages of having their plumbing and heating work done by a registered master plumber, who by training and experience is fitted to do the job.

The officers of the association, which was recently organized, are President John H. Nolan and Secretary John A. Cook. Its membership consists of more than twenty master plumbers.

Schuylkill Valley Master Plumbers Discuss NRA Code

The Schuylkill Valley Master Association, composed of master plumbers in Mahanoy City, Shenandoah, Girardville, Tamaqua and Trackville, Pa., recently held a meeting, at which the code of fair competition was discussed and explained in a thorough manner. The meeting was addressed by State Vice President Harry A. Saeger of Allentown and R. L. Hadesty of Tamaqua. Mr. Hadesty is president of the local association. The meeting was attended by 85 master plumbers.

Midwest Master Plumbers Discuss Trade Problems

The Midwest Association of Master Plumbers held its regular monthly meeting at Mountain View, Okla., on Wednesday, September 26, with a good attendance. After discussing vital trade problems of the day, the party enjoyed an excellent chicken dinner.

Among the guests attending the meeting were: State President John L. Swafford, Bill Damon, A. M. Bateman, A. H. Moore, Walter H. Reeves, and Mr. Curry of Crane Co., all of Oklahoma City; S. J. Smith of Ruud Mfg. Co., J. G. Andrews, D. E. Andrews, and Mr. Bostic, plumbing inspector, all of Lawton, Okla.

The next meeting of this organization will be held at Elk City, Okla.

Chicago Code Meeting Draws 1800

WHAT WAS probably the best attended meeting ever held in the plumbing industry in this country was a mass meeting of master and journeymen plumbers of Chicago and vicinity, which was held in the Journeyman Plumbers' Hall in Chicago on Tuesday evening, October 9th, when the Code of Fair Competition for the Plumbing Contracting Division of the Construction Industry was explained in detail.

The meeting, which was attended by about eighteen hundred members of the industry in Zone No. 1 in Illinois, was called by the State Executive of the Compliance Board, Henry P. Reger of Chicago, who is also president of the Illinois Master Plumbers' Association, for the purpose of acquainting master plumbers and journeymen with the provisions of the Code and enlisting their active co-operation in its enforcement.

Frank J. Bent, president of the Chicago Journeymen Plumbers' Association, following brief introductory remarks of welcome, turned the meeting over to Wm. R. Brookman, secretary of the Illinois Master Plumbers' Association, who introduced the officers of both organizations, the members of the Code Compliance Committees, and explained at length the principal points of the Code and the duties of both the master and journeymen plumbers under its provisions.

CALNAN ASKS FOR ACTION

John J. Calnan, president of the National Association of Master Plumbers and also a member of the Divisional Code Authority, who was one of the principal speakers at the meeting, recalled the days when he served in the ranks as a journeyman plumber, and complimented the Local Union on its progress and enterprise in possessing its own building. He referred to the general lack of business from which both the master plumber and journeyman had suffered during the past few years, and the encroachments that had been made on the trade by non-licensed men that had a tendency to cripple and destroy the standards which they had labored for years to maintain. No other trade, he said, had been surrounded by the same restrictions, sanitary laws and regulations, and yet partly through their own neglect in compelling enforcement of the license laws and ordinances, the industry was in a deplorable condition. Through the sale of plumbing fixtures direct to the consumer by the mail order and direct-to-you concerns, and the installation of these fixtures by handy men and others regardless of ordinance requirements, the business had been gradually drifting into these other channels.

The employment of maintenance men by hotels, institutions, industrial plants and real estate management concerns, working for less than the established wage scale, Mr. Calnan stated, had taken a great deal of work away both from the master plumber and the journeyman, and it had been conclusively demonstrated, he continued, that the employment of these non-licensed men had been responsible for the installation of cross connections which had resulted in the contamination of the drinking water supply in some of the prominent Chicago hotels and which caused numerous cases of amebic dysentery last summer.

WANT JOURNEYMAN CO-OPERATION

He also pointed out that the master plumber for a number of years past has been operating at a disadvantage in competing for work as he had been compelled to pay a higher price for his material from his regular source of supply than the mail order house and direct-to-you companies sold to the consumer. Thus the master plumber who has consistently paid the regular wage scale, and who has been the real friend of the journeymen plumbers, has been traveling under an almost impossible handicap in competing for business.

Mr. Calnan emphasized the absolute necessity for closer, continuous co-operation between the master plumber and the journeyman as a remedy for the present situation and for the maintenance of the present wage scale. He stated the journeymen would find it to their advantage to observe the laws and ordinances in having their men work only for the legitimate master plumber.

He referred to the inroads made by the mail order and direct-to-you companies through newspaper advertising, and the lack of such publicity by the manufacturers who sold most of their product through the master plumber, but was

Record Crowd Attends Code Meeting at Chicago

gratified that these manufacturers had been aroused to the point where they intend to institute a national advertising campaign through newspaper publicity or the radio or both, to acquaint the public with the fact that their plumbing fixtures can be purchased just as cheaply as those advertised by the mail order house, and the importance of correct installation by licensed plumbers will be emphasized. He also spoke of the opportunity that the master plumbers are offered of reviving the industry through actively co-operating with the campaign for modernizing, advocated under the Federal Housing Act, closing with a plea for more rigid ordinance enforcement and for putting the seller of plumbing fixtures and appliances having sewer or water connections under the direct control of our plumbing laws.

EXPLAINS ENFORCEMENT PLANS

Charles E. Gawne, chairman of the Code Committee in the Chicago area and president of the Plumbing Contractors' Association of Chicago as well as national secretary, made an effective talk on the Code of Fair Competition, and the intention of his committee to co-operate for its strict enforcement and compliance. Chicago Vice-President Thomas F. Hanley spoke on the importance of plumbing installations being made only by licensed journeymen under the supervision of the licensed master plumber, while William F. Hildeman of Chicago Heights, a member of the Code Committee, dwelt on the importance of co-operative action between both branches of the industry to secure enforcement of the Code.

Joseph Nelson, field representative of the Construction Industry in Illinois and himself a former master plumber and member of the Chicago Plumbing Contractors' Association, spoke in reference to Code compliance and stated that it was part of his duty to see that the Code for the Plumbing Division of the Construction Industry was rigidly enforced.

Henry P. Reger, state executive of the Compliance Board, informed the meeting that while the Code had been approved and signed on June 4th last, it was not until recently that the machinery had been set up to make the Code effective in this state, and that it was the intention of the Compliance Board to enforce the Code strictly in the 35 zones into which the State of Illinois had been divided. He stated that arrangements had been made to set up a bid depositary at convenient points throughout the state, and that this requirement of the Code would be insisted upon as a means of curbing unfair trade practices. He also stated that under the Code it was a violation for anyone to do plumbing work except a licensed plumber, in states where the law required it, and it was the intention with the co-operation of the journeymen to enforce this provision of the Code. Mr. Reger, who is now serving his third term as president of the Illinois State Association, asked for the support of the master plumbers and journeymen in policing the industry by reporting violations to the proper authorities, assuring them that all complaints would be thoroughly investigated. He referred to the demoralized conditions in the plumbing business through the encroachments of non-licensed men, and the direct-to-consumer companies in selling material directly to the public, regardless of having it correctly installed, and stated that a strong effort would be made to remedy this condition through the Code, asking the loyalty of both the master and journeymen plumbers in observing its provisions.

The officers of the Chicago Journeymen Plumbers' Association pledged their support and co-operation to the Code, through their Business Agents, Wm. Curren, Thos. Ferrier, who is also president of the Illinois State Journeymen's Association, and Thos. Durkin and also by the members of their executive boards. Other speakers who were called upon were the following: Chas. A. Dreier, chairman of the Arbitration Committee of the Plumbing Contractors' Association, F. W. Radcliffe, D. F. Garvey, Wm. E. Quirk, Florence McCarthy and others.

Kansas City Master Plumbers Hear Code Compliance Explained

To enlighten members on the Code of Fair Competition and its enforcement, a special meeting sponsored by the Master Plumbers' Association of Kansas City, Mo., was held in that city on Thursday, October 4, under the direction of President J. S. Levene. The meeting was so well attended that the hall was packed to capacity and many were standing outside trying to hear the speakers.

The main speakers at the meeting were J. McDaniel Smith, government enforcement officer of the NRA in the Kansas City area, and Edward Monteath of St. Louis, chairman of the State Code Compliance Committee of Missouri.

Having been introduced by George Satterlee of Kansas City, member of the Code Compliance Committee of the 14th Zone, Mr. Smith opened his address by stating that the

Plumbing Code Authorities in Kansas City are the best in that city, and that he was glad this committee was confirmed. He emphasized the point that it is absolutely necessary for every member to pay strict attention to the provisions of the Plumbing Code in regard to wages and working hours. If any members have been paying their employees less than the amount called for, it would be better for them to pay these back wages since June 4th and live up to the provisions. If all employers in this district will follow the provisions, conditions automatically will improve 75 per cent. Quite a number of people have thought that they were bigger than the government, but to date no one has been able to maintain this attitude. If there are some who think they can get away with it, the enforcement office will find it out. Mr. Smith told of several cases of this kind, which his office has handled, some serious and pathetic, others comic, and finished his address by stating that the plumbers have one of the best codes, and that it is to their advantage to follow it voluntarily. If they do this, they will find their way out of their financial difficulties and would assist the President in returning prosperity to our country.

CODE WILL BENEFIT

President Levene introduced the next speaker, Edward Monteath of St. Louis, first vice-president of Missouri State Association of Master Plumbers and chairman of the State Code Compliance Committee. Mr. Monteath opened his address by enumerating the benefits members will receive by complying with the Code, and he told of the efforts of the National Association of Master Plumbers for the purpose of having the Code approved. He also announced that the Code authorities for Missouri have been confirmed in their entirety and that the Code Compliance Committee for this zone are: George L. Satterlee, W. T. Conroy and J. H. Richardson. One of the first duties of the Code Compliance Committee is to collect the assessment, and it is mandatory that every contractor in the industry pay his assessment promptly. When approved, a bid depository will be established and every member of this industry must file a copy of every bid of $50.00 or more, and this bid must be accompanied by a filing fee. If only one bid is filed and it is not a competitive job, the filing fee will be returned to the contractor. All bids must be filed two hours in advance of giving same to a general contractor or an awarding authority. No one will be allowed to do any PWA work or other work subsidized by the government unless he complies with the Code. When the members of our industry see the advantages of living under this Code, no one will want to return to the old method of doing business.

Among the out-of-town visitors at the meeting were C. L. Kennedy of St. Joseph, past national director, past state president, and now member of the State Code Compliance Committee; H. J. Enright and B. C. Neely, Zone Code Compliance Committee members of St. Joseph.

M. G. Ericson Secures Interest in Plumbing Business at Salt Lake City

The name of the Will Rees Plumbing Company, Salt Lake City, Utah, has been changed to the Rees-Ericson Plumbing and Heating Company. The new member of the firm is Marshall G. Ericson, formerly manager of the plumbing department of the K & K Plumbing Company in that city. The Will Rees Plumbing Company is probably the oldest in Salt Lake City, having been established by Will Rees in 1890. Mr. Rees has been an active association member, having held various offices in city and state plumbing contractors associations, and he was president of the Salt Lake City organization at the time the National Association of Master Plumbers held its convention in Salt Lake City.

Mr. Ericson is past president of the Salt Lake City Association of Licensed Plumbers, and a member of the code authority for the plumbing and heating industry, under the Recovery Act.

S. F. Master's Daughter Wins Famous Swimming Event

Doris McLeod, 19 year old daughter of J. J. McLeod of San Francisco, for many years active in the affairs of the local Master Plumbers' Association, added another laurel to her list of swimming achievements on Columbus Day, October 14, when she won The Chronicle's one-mile swim classic for women at Aquatic Park. Forty thousand spectators witnessed the event. In addition to holding a number of titles, Miss McLeod is the only swimmer—man or woman—who has made the strenuous swim around Alcatraz, the new U. S. "devil's island" situated in the middle of San Francisco Bay. Miss McLeod is office secretary of the San Francisco Master Plumbers' Association.

Hudson County, N. J., Master Plumbers at Dinner Given by Utility Company

Delegates and guests at the recent annual meeting of the American Society of Sanitary Engineering, held at Toronto.

Re-Inspection of Plumbing Prevents Disease

By Joseph J. Crotty*

FROM its inception, the American Society of Sanitary Engineering has, by research and test, labored to protect public health from the hazards that originate from defective plumbing, in keeping with the motto of "Prevention is better than cure."

The Society membership is made up of men who maintain a more intimate contact with more varied forms of plumbing installation than any other organization in the world. Fortified with the practical knowledge of the craftsman, supplemented by the technical, their understanding of the problems involved, may be regarded as authoritative beyond question. One of the cardinal principles of the American Society of Sanitary Engineering is that there is a distinct relationship between plumbing and health.

The relationship of plumbing to health is not an empty phrase, and its importance in the promotion of health and the prevention of disease, must not be indexed as an item in building construction. Health is concerned with other factors than disease germs. To a great degree, health is dependent upon environment. The human instinct to rebel against offensive odors, must be closely interwoven with, or possess, some influence with modern health.

The evolution of modern plumbing or domestic sanitary engineering, may be traced to mankind, seeking relief from the bondage and drudgery necessary, where stream or shallow well was the source of water supply and from the dread menace of the pit or privy, contaminating the air, polluting the water source and poisoning food supply through fly transmission.

Lacking a proper supply of hot or cold water, hygienic practice cannot be followed, and disease germs can be conveyed to the mouth, introduced into the system with food that has become infected from unclean hand contact.

For the proper operation of plumbing fixtures, the supply and drainage systems are mutually responsible. Water carriage is essential to proper flow and drainage disposal. Domestic sanitary engineering is responsible for plumbing design and installation, and is undergoing a continuous change, and the pursuit of perfection is an endless chase.

The trend of standards throughout the entire industry, is onward and upward. Manufacturers, domestic sanitary engineers, contracting plumbers are giving freely of their time and money to extensive research, analysis and tests, which certify to the material that is used in modern plumbing installations.

Plumbing fixtures have been the subject of constant study with the object of improvement. China and enameled ware make dirt conspicuous and contribute to the elevation of sanitary standards by usage.

Who can deny the beneficial influence on child health, through the introduction of bubbler fountains in schools, and the elimination of latrines.

Tread controlled fixtures are now standard equipment for hospital service. Domestic sanitary engineers and plumbing inspectors are constantly on the alert to detect fixtures that pollute water supplies by cross connection with sewage. American kitchen fixtures are the delight of womenkind. Municipal baths and swimming pools are a health factor in city life. Public comfort stations are recognized as an American institution, constantly increasing in number and improving in design.

INSPECTING OLD JOBS

In considering the value of plumbing inspection of new plumbing and the re-inspection of old plumbing, certain practical conditions must be kept in mind. Those experienced in making inspections and criticisms of plumbing installation, are agreed that a plumbing system that has been in use ten years or longer, is more apt to be in a condition detrimental to the health of the occupants of the building, than a new job, and therefore, requires expert inspection and, where needed, compulsory remodeling.

The importance of correct installation of new plumbing and the necessity of applying a proper test, and inspection of every new installation is most outstanding, yet, it is not generally realized that even the best work and the most substantial material, reach a point where the natural wear

*Paper read at the annual meeting of the American Society of Sanitary Engineering, held recently at Toronto, Ontario. Mr. Crotty is president of this Society and vice president of the Central Foundry Co. in New York City.

often accompanied by ill-usage, causes a plumbing system to become a physical hazard.

It being conceded absolutely necessary, to provide code regulation, governing the installation of plumbing, it is doubly important that rules and regulations be formulated for the maintenance of plumbing in old buildings, in such a manner as to prevent its becoming a menace to health. To the average householder, leakage of water may be important, but the hidden sources of danger cause no concern. Hence, the necessity for making re-inspection of plumbing mandatory, in order that such conditions may be located and remedied by an expert.

Over a period of many years, the American Society of Sanitary Engineers has expended much time and money in proclaiming the merits and advantages to be derived from the re-inspection of old plumbing. It has been a most discouraging task to break down the skepticism, to meet by arguments, those who scoffed at the idea, to sting into activity those in authority, whose lack of interest ranged from apathy to antipathy.

EVERY CITY IS CONCERNED

In every state, city and town, there exists conditions demanding improvement. If the community is to benefit, some one must take these conditions in hand, frequently, in fact, in the majority of cases, state, city and town governments are without authority, or lacking in funds to undertake the activities in question.

These matters are vitally important to the inhabitants, yet, if anything is to be accomplished, leadership must be found, which will accept the responsibility, survey the situation, prescribe the remedy, and then set about accomplishments.

For many years, the American Society of Sanitary Engineering has functioned in this leadership, either in cooperation with existent agencies or independently. Now, by reason of aroused public opinion, the opportunity is presented for a splendid type of public service.

The outbreak of amoebic dysentery in Chicago, has served as a most deadly confirmation of the merit to be found in, and the necessity for the periodical re-inspection of old plumbing, and it is most gratifying to note the many endorsements received from associations and individuals to this principle, originally sponsored by the American Society of Sanitary Engineering.

It is an appalling fact that the loss of life in Chicago would have been prevented if the city government had vested authority in the Chicago Board of Health, to make periodical re-inspections of old plumbing and had vested them with the power to compel such alterations as would eliminate all hazards, making it mandatory with the property owner to comply with the requirements set up by the board of health, under penalty of having the building declared unfit for human habitation.

I would like to appeal to every medical health officer and plumbing inspector present at this meeting, to bring to the chief medical officer or health commission of his state, town or city, a written report, setting forth the necessity of drafting an amendment to the law of the board of health, so that competent inspectors who are practical plumbers, can be appointed to work under the jurisdiction of the board of health, to examine plumbing in old buildings. An old building may be designated as one in use ten years since the final approval of its construction plans.

I am positive that such inspection will reveal sins of omission and commission, such as will be startling. There are many buildings recent in construction upon which great sums of money have been expended, to install the most modern job of sanitary plumbing.

This expensive system of plumbing has been made defective, by the addition to it, or subtractions from it, by a so-called maintenance department, usually attached to the building engineer's staff, which work in secrecy and in utter defiance to those plumbing codes or regulations, formulated for the protection of public health. It should be to the advantage of legislators and others in authority, to know that the American Society of Sanitary Engineering is on record, by a resolution unanimously adopted, placing all types of plumbing inspection under the control of the board of health, and this is to be construed as a timely warning indeed, to those states, cities and towns that rely for fact finding upon the building department, which exercises authority only over the installation of plumbing in new buildings, and it is general knowledge that the hazards from new plumbing has been reduced to a minimum by proper supervision and inspection over installation.

There is a startling inconsistency in law, that compels rigid observance to plumbing regulations in a new building, that may be flanked on both sides by old buildings, wherein plumbing installation has, through age, outlived its usefulness, and is a disease breeding center.

Conditions similar to those responsible for the outbreak in Chicago, can be found in every city in this country, not omitting the rural districts, especially those which maintain public institutions, such as homes for the aged or blind, or what are generally known as town farms or poor houses.

A most determined effort should be made to protect those

Other delegates and guests at the recent annual meeting of the American Society of Sanitary Engineering, held at Toronto

unable to protect themselves. It is my firm conviction that if rural life is to be developed, placed upon a plane of sanitary security, the old shallow wells, the hand pump and the un-sanitary privy must be replaced by better and more modern devices.

As a factor in the prevention of disease, that which has been accomplished by the plumbing industry, has received but scant recognition, but we of the plumbing industry submit, that along the broad highway of achievements, we too, have placed some milestones.

Hall—

(Continued from Page 39)

sheets, thus placing the registered master plumber in the position of determining just what our merchandise can bring from the consuming public. Plumbers know what their competition is and from whence it comes. It may be the local d. t. u. house, the mail order, the wholesale hardware or what have you. The plumber, armed with his cost sheets, can now definitely predicate his selling price on what the competition is forcing. I might say offering, but forcing seems more appropriate. In our contact nationally with the master plumber wehave become convinced that he is more than mindful of our mutual problems.

That the so-called staple business, meaning the leg tub and similar volume items, has been fast passing from our channels, none can deny. The sale of leg tubs, for example, is still running neck and neck with the built-in variety, and yet I venture to say that none of you here can honestly state that your own business reflects such a condition. Definitely we have allowed the inexpensive or staple business to get away from us and in so doing multiplied our problems. Obviously in printing the new trade price sheets we have taken into consideration currently existing prices being offered to the consumer by the combined outside forces. Our cost sheets for the plumber have been aimed at the idea of placing him in a real position to meet his competition and of course that, in the ultimate, means yours as jobbers and our own as manufacturers.

Perhaps in the sale of the strictly staple or so-called lead items, the plumbers' profit may be slim in the extreme and by the same token yours and our own, but at least the three factors comprising our distributive setup are receiving the opportunity to retrieve the lost staple volume in a real way. That may sound like rather a bold statement, but figures don't lie and any of you who may have taken the time to check government statistics must realize the extent to which the staple business has been departing from our channels. Without the staple or tonnage business, the larger manufacturers must soon cease to be known as such. Coincidentally with that situation, you gentlemen also lose your potency in the jobbing field and our third partner, the master plumber, suffers proportionately, in fact worse, in that he also loses the installing job and ultimately much of his identity.

The adoption of our new system, involving the introduction of the trade price sheets, forced some drastic price reductions. These were not aimed at any individual company or group. They were based first of all on currently published selling prices to the consumer as being made by different sources. The price reduction feature, therefore, is merely a necessary step in the creation of our new policy—repeating, a plan whereby your customer, the master plumber, is now being placed in a position to step out and meet his competition vigorously, all toward restoring the proper volume of staple plumbing fixture business to the traditional channel.

You

ARE THE MAN

WHO IS RESPONSIBLE

SO...

Did you ever stop to think of the responsibility you assume when you undertake a plumbing, heating, air-conditioning or any other piping job?

When a pipe of special material is specified, you may be required to use a particular make—but, with very few exceptions, when the job calls for steel pipe, you're the man who selects it. There's your responsibility. If the pipe isn't everything that it should be, you're the first in line for blame.

Isn't this reason enough why you should carefully select your materials—to make sure that you are recommending and using the best for the price?

When it's a question of steel pipe, it will be to your benefit to consider Fretz-Moon Pipe. For here is steel pipe that costs no more, but, because it is made of specially-selected steel by the exclusive, scientifically-controlled "continuous process," offers high degrees of uniformity, ductility and cleanliness not found in steel pipe made by ordinary methods. And it's always dependable.

You'll be interested in reading a little booklet containing the story of how Fretz-Moon Pipe is made, and why it is better. Write for a copy.

FRETZ-MOON TUBE CO., INC.

BUTLER, PENNA.

FRETZ-MOON
PIPE
BLACK AND GALVANIZED

NRA Approves Plumber Code Set-up for 6 More States

Kentucky — Mississippi — South Carolina — Vermont — Virginia — Wisconsin

(M) Indicates representatives of N.A.M.P. (N. M.) Indicates representatives of non-members.

KENTUCKY

Division of the State

Zone 1. Counties) Ballard, Carlisle, Hickman, Fulton, McCracken, Graves, Marshall, Calloway, Trigg, Lyon, Livingston, Caldwell, Crittenden, Union, Henderson, Webster, Hopkins, Christian.

Zone 2. (Counties) Daviess, McLean, Muhlenberg, Todd, Logan, Butler, Ohio, Grayson, Edmonson, Warren, Simpson, Allen, Barren.

Zone 3. (Counties) Hancock, Breckenridge, Meade, Hardin, LaRue, Hart, Metcalfe, Monroe, Cumberland, Clinton, Wayne, Russell, Adair, Green, Taylor, Marion, Washington, Nelson, Bullitt, Spencer, Shelby, Jefferson, Oldham, Henry.

Zone 4. (Counties) Boyle, Lincoln, Rockcastle, Casey, Pulaski, McCreary, Whitley, Bell, Knox, Laurel, Clay.

Zone 5. (Counties) Jackson, Owsley, Lee, Wolfe, Estill, Madison, Garrard, Mercer, Anderson, Woodford, Jessamine, Fayette, Clark, Bourbon, Bath, Montgomery, Menifee, Powell, Rowan.

Zone 6. (Counties) Fleming, Mason, Bracken, Robertson, Nicholas, Harrison, Pendleton, Campbell, Kenton, Boone, Grant, Scott, Franklin, Owen, Gallatin, Carroll, Trimble.

Zone 7. (Counties) Lewis, Greenup, Carter, Boyd, Elliott, Lawrence, Morgan, Johnson, Martin, Pike, Floyd, Magoffin, Breathitt, Knott, Perry, Leslie, Letcher, Harlan.

State Code Compliance Committee

Albert D. Burger (Chairman) (M), 1585 Baxter Avenue, Louisville, Ky.

Albert F. Hirsch (M), 230 E. Market Street, Louisville, Ky.

Edwin Kaiser (M), 1118 Ash Street, Louisville, Ky.

John E. Kennedy (M), Virginia and Dixie Highway, Covington, Ky.

John M. Wilbers (M), 615 S. Shelby, Louisville, Ky.

E. J. Sivori (M), 701 E. Chestnut Street, Louisville, Ky.

John Wobbe (N. M.), 1118 Bardstown Road, Louisville, Ky.

Fonda Bosemer (N. M.), Manslick Road, Louisville, Ky.

Carl H. Lutz (N. M.), 215 S. 43rd Street, Louisville, Ky.

Zone Code Compliance Committees

Zone 1

G. L. Norcutt (M), Henderson Plumbing Company, Henderson, Ky.

Hugh McShane (M), 10th & Liberty Streets, Hopkinsville, Ky.

E. L. Prow (N. M.), Madisonville, Ky.

Zone 2

H. B. Van Bibber (M), 1206 Broadway, Bowling Green, Ky.

Wm. McShane (M), Glasgow, Ky.

Arthur Dougherty (N. M.), 423 Park Row, Bowling Green, Ky.

Zone 3

Edwin Kaiser (M), 1118 Ash Street, Louisville, Ky.

Martin Wittmer (M), 2539 Grand Avenue, Louisville, Ky.

Wm. L. Sauer (N. M.), 912 Baxter Avenue, Louisville, Ky.

Zone 4

B. J. Clarke (M), Danville, Ky.

E. P. Johnson (M), Danville, Ky.

E. L. Umversaw (N. M.), Danville, Ky.

Zone 5

Wm. Maloney (M), Lexington, Ky.

F. H. Tice (M), 505 E. Maxwell Street, Lexington, Ky.

E. A. Hardwick (N. M.), 264 Rand Street, Lexington, Ky.

Zone 6

H. H. Schuler (M), 254 Pike Street, Covington, Ky.

Chas. Andejeski (M), 334 Ward Avenue, Bellevue, Ky.

John Fossett (N. M.), 509 Scott Boulevard, Covington, Ky.

Zone 7

Wendal Meinhart (M), 319 E. Greenup Street, Ashland, Ky.

C. G. Bradshaw (M), 328—19th Street, Ashland, Ky.

W. G. Ferguson (N. M.), Ashland, Ky.

MISSISSIPPI

Division of the State

Zone 1. (Counties) DeSoto, Tunica, Tate, Marshall, Benton, Union, Tippah, Alcorn, Tishomingo, Prentiss, Lafayette, Panolo, Quitman, Coahoma.

Zone 2. (Counties) Bolivar, Washington, Humphreys, Sunflower, Leflore, Tallahatchie, Grenada, Yalobusha, Calhoun, Pontotoc, Chickasaw, Lee, Itawamba, Monroe.

Zone 3. (Counties) Lauderdale, Newton, Neshoba, Kemper, Noxubee, Winston, Lowndes, Oktibbeha, Webster, Clay, Choctaw, Montgomery, Carroll.

Zone 4. (Counties) Issaquena, Sharkey, Yazoo, Holmes, Attala, Leake, Madison, Scott, Rankin, Hinds, Warren, Jefferson Davis, Claiborne, Copiah, Simpson, Smith, Covington, Jefferson, Lawrence, Lincoln, Franklin, Adams, Wilkinson, Amite, Pike, Walthall, Marion, Lamar.

Zone 5. (Counties) Jasper, Clarke, Jones, Wayne, Forrest, Perry, Greene, Pearl River, Stone, George, Hancock, Harrison, Jackson.

J. P. Davis

State Code Compliance Committee

J. P. Davis (Chairman) (M), 115 South State Street, Jackson, Miss.

S. S. Richard (M), Jackson, Miss.

Walter Kidder (M), Meridian, Miss.

B. L. Knost (M), Pass Christian, Miss.

Kenneth Paine (M), Jackson, Miss.

J. D. Lantham (M), Greenwood, Miss.

C. D. Hill (N. M.), Laurel, Miss.

Robert Nicholson (N. M.), Vicksburg, Miss.

G. M. Mills (N. M.), Canton, Miss.

Zone Code Compliance Committees

Zone 1

To be handled temporarily by Committee in Zone 2.

Zone 2

J. D. Lantham (M), Greenwood, Miss.

J. E. Teague (M), Moorhead, Miss.

A. H. Borsh (N. M.), Greenwood, Miss.

Zone 3

A. S. Rae (M), 2309—8th Street, Meridian, Miss.

Walter Kidder (M), Meridian, Miss.

G. B. Kidder (N. M.), Columbus, Miss.

Zone 4

H. G. Peters (M), Jackson, Miss.

E. A. Harwell (M), Jackson, Miss.

M. P. Phelan (N. M.), Natchez, Miss.

Zone 5

R. R. Hamilton (M), Gulfport, Miss.

H. L. Schwann (M), Calivet Street, Biloxi, Miss.

J. T. Erhard (N. M.), Gulfport, Miss.

SOUTH CAROLINA

Division of the State

Zone 1. (Counties) Cherokee, Spartanburg, Union.

Zone 2. (Counties) Chester, Lancaster, York.

Zone 3. (Counties) Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Williamsburg.

Zone 4. (Counties) Berkeley, Charleston, Dorchester, Colleton, Hampton, Jasper, Beaufort.

Zone 5. (Counties) Oconee, Anderson, Abbeville, Greenwood, McCormick.

Zone 6. (Counties) Newbury, Fairfield, Kershaw, Saluda, Lexington, Richland, Edgefield, Aiken, Calhoun, Sumter, Clarendon, Orangeburg, Bamberg, Barnwell, Allendale.

Zone 7. (Counties) Greenville, Pickens, Laurens.

State Code Compliance Committee

J. B. Creighton (Chairman) (M), 134 South Church Street, Spartanburg, S. C.

F. J. Mappus (M), 154 King Street, Charleston, S. C.

B. S. Milligan (M), 1207 Lady Street, Columbia, S. C.

J. J. McDevitt (M), 7 S. Richardson Street, Greenville, S. C.

J. F. Bobo (M), 111 W. Benson Street, Anderson, S. C.

Thos. Chilton (M), Florence, S. C.

George Holloway (N. M.), Greenwood, S. C.

C. F. Pendleton (N. M.), Cheraw, S. C.

W. H. Weatherford (N. M.), Aiken, S. C.

Zone Code Compliance Committees

Zone 1

A. D. Carter (M), 381 S. Church Street, Spartanburg, S. C.

C. L. Lee (M), 145 Dunbar Avenue, Spartanburg, S. C.

T. J. Cagle (N. M.), Gaffney, S. C.

Zone 2

T. B. Aaron (M), Chester, S. C.

R. H. McKeown (M), Lancaster, S. C.

E. H. Shillinglaw (N. M.), York, S. C.

ZONE 3

G. Wilson Bryce (M), Florence, S. C.

S. F. Campbell (M), Florence, S. C.

J. J. Jordan (N. M.), Bishopville, S. C.

ZONE 4

Carl Knutsson (M), 119 Church Street, Charleston, S. C.

J. H. Duc (M), 74 Spring Street, Charleston, S. C.

W. J. Kennedy (N. M.), 78 Line Street, Charleston, S. C.

ZONE 5

L. P. Phillips (M), 317 N. Main Street, Anderson, S. C.

W. F. Glenn (M), 116 Peoples, Anderson, S. C.

G. A. Harrison (N. M.), Abbeville, S. C.

ZONE 6

W. A. Griner (M), Columbia, S. C.

Harold Walker (M), 1112 Laurel Street, Columbia, S. C.

A. J. Ard (N. M.), Sumter, S. C.

ZONE 7

J. M. Barr (M), W. North Street, Greenville, S. C.

H. W. Acker (M), Easley, S. C.

J. H. Boyd (N. M.), Laurens, S. C.

VERMONT

Division of the State

ZONE 1. (Counties) Chittenden, Franklin, Grand Isle.

ZONE 2. (Counties) Washington, Lamoille.

ZONE 3. (Counties) Caledonia, Orleans, Essex.

ZONE 4. (Counties) Rutland, Addison.

ZONE 5. (Counties) Windsor, Orange.

ZONE 6. (Counties) Windham, Bennington.

State Code Compliance Committee

O. D. Ward (Chairman) (M), 69 Center Street, Rutland, Vt.

W. N. Peck (M), Montpelier, Vt.

Robert S. Lanou (M), 90 St. Paul Street, Burlington, Vt.

F. I. Somers (M), Montpelier, Vt.

B. A. Adams (M), 55 Grove Street, Rutland, Vt.

Paul Raine (M), c/o G. S. Blodgett Company, Burlington, Vt.

J. R. Baker (N. M.), Essex Junction, Vt.

Roy Fitch (N. M.), Brattleboro, Vt.

W. N. Brosette (N. M.), Burlington, Vt.

Zone Code Compliance Committees

ZONE 1

Robert S. Lanou (M), 90 St. Paul Street, Burlington, Vt.

Richard Hickok (M), 27 Center Street, St. Albans, Vt.

Harry Teachout (N. M.), Essex Junction, Vt.

ZONE 2

W. N. Peck (M), 29 State Street, Montpelier, Vt.

Arthur Averill (M), c/o C. W. Averill Company, Barre, Vt.

Jas. McLeod (N. M.), Barre, Vt.

ZONE 3

Horace Goss (M), 17-19 Central Street, St. Johnsbury, Vt.

Percy Bragg (M), St. Johnsburg, Vt.

W. B. Gosselin (N. M.), Newport, Vt.

ZONE 4

O. D. Ward (M), 69 Center Street, Rutland, Vt.

B. A. Adams (M), 55 Grove Street, Rutland, Vt.

M. L. Connolly (N. M.), 67 Wales Street, Rutland, Vt.

ZONE 5

E. H. Kier (M), Windsor, Vt.

A. Kier (M), Springfield, Vt.

T. F. Ratte (N. M.), Randolph, Vt.

ZONE 6

M. D. McAuliffe (M), c/o Geo. B. Albee Company, Bellows Falls, Vt.

W. T. Huestis (M), Brattleboro, Vt.

Clarence Bodine (N. M.), Bellows Falls, Vt.

VIRGINIA

Division of the State

ZONE 1. (Counties) Northampton, Accomac.

ZONE 2. (Counties) Sussex, Southampton, Surry, Isle of Wight, Nansemond, Norfolk, Princess Anne.

ZONE 3. (Counties) James City, Warwick, Elizabeth City, York, Gloucester, Mathews.

ZONE 4. (Counties) Goochland, Powhatan, Amelia, Chesterfield, Henrico, Hanover, New Kent, Charles City.

ZONE 5. (Counties) Prince Edward, Lunenberg, Mecklenburg, Brunswick, Nattoway, Dinwiddie, Prince George, Greenville.

ZONE 6. (Counties) Franklin, Patrick, Henry, Pittsylvania, Charlotte, Halifax.

ZONE 7. (Counties) Tazewell, Smyth, Grayson, Carroll, Wythe, Bland.

ZONE 8. (Counties) Lee, Scott, Wise, Dickenson, Buchanan, Russell, Washington.

ZONE 9. (Counties) Giles, Pulaski, Floyd, Montgomery, Craig, Roanoke, Botetourt.

ZONE 10. (Counties) Bedford, Campbell, Amherst, Nelson, Buckingham, Appomattox, Cumberland.

ZONE 11. (Counties) Alleghany, Rockbridge, Augusta, Highland, Rockingham, Bath.

ZONE 12. (Counties) Greene, Albemarle, Fluanna, Louisa, Orange, Culpeper, Madison, Rappahannock.

ZONE 13. (Counties) Page, Shenandoah, Warren, Clarke, Frederick.

ZONE 14. (Counties) Loudoun, Fauquier, Fairfax, Prince William, Stafford, Arlington.

ZONE 15. (Counties) Spotsylvania, King George, Caroline, Westmoreland, Richmond, Essex, King & Queen, King William, Middlesex.

State Code Compliance Committee

Edward F. Lawler (Chairman (M), 416 Boush Street, Norfolk, Va.

W. L. Lacy (M), 110—4th Street, N. E., Charlottesville, Va.

W. E. Coley (M), 432 Boush Street, Norfolk, Va.

E. H. Birch (M), 12 Preston Avenue, Cherrydale, Va.

P. D. Miller (M), 19 E. Water Street, Winchester, Va.

J. L. Pace (M), 129 Kirk Avenue, West Roanoke, Va.

T. F. Noel (M), Farmville, Va.

A. J. Thomas (N. M.), 2509 Huntington Street, Newport News, Va.

J. Lew Brown (N. M.), Lynchburg, Va.

Zone Code Compliance Committees

ZONE 1

T. H. Eubanks (M), Cape Charles, Va.

John L. Polliard (M), Onancock, Va.

John W. Custis, (N. M.), Onancock, Va.

ZONE 2

J. G. Lancaster (M), 285 Lucille Avenue, Norfolk, Va.

W. L. Bennett (M), 425 High Street, Portsmouth, Va.

Randolph May (N. M.), Jarvis Building, Virginia Beach, Va.

ZONE 3

J. A. Maclay (M), 3100 Virginia Avenue, Newport News, Va.

John L. Hutton (M), 209 Armstead Avenue, Hampton, Va.

Arthur Langslow (N. M.), 1233—25th Street, Newport News, Va.

ZONE 4

(Temporary Committee for Zone 4).

Edward F. Lawler (M), 416 Boush Street, Norfolk, Va.

J. J. Shanahan (M), 217 West Freemason Street, Norfolk, Va.

E. G. Priddie (N. M.), 304 South Pine, Richmond, Va.

ZONE 5

W. L. Hall (M), 412 N. Sycamore Street, Petersburg, Va.

D. W. Irvine (M), 252 Broadway, Petersburg, Va.

W. J. Bloomfield (N. M.), Farmville, Va.

ZONE 6

Willoughby Farley (M), 120 South Union Street, Danville, Va.

J. W. Martin (M), Danville, Va.

Joseph Stultz (N. M.), Martinsville, Va.

ZONE 7

J. W. Todd (M), Marion, Va.

Herbert Hayes (M), Bristol, Va.

B. F. Newton (N. M.), Appalachia, Va.

ZONE 8

To be handled temporarily by Zone 7 Committee.

ZONE 9

R. E. Miller (M), 311 Tazewell Avenue, Roanoke, Va.

Geo. E. Markley (M), 207 W. 21st Street, Roanoke, Va.

O. Y. Yates (N. M.), Roanoke, Va.

ZONE 10

C. D. Moseley (M), 1728 Fillmore Street, Lynchburg, Va.

James Cleland (N. M.), Lynchburg, Va.

W. H. Chase (M), Bedford, Va.

ZONE 11

Frank Dunn (M), 35 S. Main Street, Lexington, Va.

Frank Moran (M), 124 W. Main Street, Staunton, Va.

J. L. Powell (N. M.), Covington, Va.

ZONE 12

E. A. Brizzolara (M), Orange, Va.

C. M. Woodward (M), Charlottesville, Va.

W. E. Brown (N. M.), Charlottesville, Va.

ZONE 13

E. E. Morrisette (M), Woodstock, Va.

James Beeler (M), Strasburg, Va.

Burke Thomas (N. M.), Berryville, Va.

ZONE 14

Wm. E. Wolff (M), 55 Woodstock Street, Clarendon, Va.

Herman Chichester (M), 411 N. West Street, Alexandria, Va.

George VonEiff (N. M.), Hamilton Avenue, Clarendon, Va.

ZONE 15

Geo. M. Hefflin (M), Fredericksburg, Va.

J. C. Lamb (M), Warsaw, Va.

E. H. Goodrick (N. M.), Fredericksburg, Va.

WISCONSIN

Division of the State

ZONE 1. ((Counties) Milwaukee, Waukesha.

ZONE 2. (Counties) Walworth, Racine, Kenosha.

ZONE 3. (Counties) Washington, Dodge, Sheboygan, Ozaukee.

ZONE 4. (Counties) Grant, Iowa, LaFayette.

ZONE 5. (Counties) Columbia, Dane, Jefferson, Rock, Green.

ZONE 6. (Counties) Fond du Lac, Manitowoc, Calumet, Winnebago, Outagamie, Brown, Kewaunee, Door.

ZONE 7. (Counties) La Crosse, Monroe, Vernon, Crawford, Richland, Sauk.

ZONE 8. (Counties) Juneau, Adams, Waushara, Marquette, Green Lake.

37 States Now Organized

N R A organizations for the Plumbers Code have been announced for 37 states. In the September and October issues we listed the Official Plumbers Code Set-Up for the following 31 States:

Alabama, Arizona, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Kansas, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas and Washington.

ZONE 9. (Counties) Wood, Portage, Waupaca, Shawano, Marathon.

ZONE 10. (Counties) Oconto, Marinette, Florence.

ZONE 11. (Counties) St. Croix, Pierce, Pepin, Dunn, Buffalo, Trempealeau, Jackson, Clark, Eau Claire, Chippewa, Taylor.

ZONE 12. (Counties) Polk, Burnett, Washburn, Barron, Rusk, Sawyer, Price.

ZONE 13. (Counties) Vilas, Forest, Langlade, Oneida, Lincoln.

ZONE 14. (Counties) Iron, Ashland, Bayfield, Douglas.

State Code Compliance Committee

George O. Toepfer (Chairman) (M), 789 North Jefferson Street, Milwaukee, Wis.

Robert T. Morrill (M), 524 East Grand Avenue, Beloit, Wis.

Louis J. Schoenleben (M), 424 Wisconsin Street, Racine, Wis.

Lewis J. Eron (M), 195—2nd Street, North Wisconsin Rapids, Wis.

Walter E. Murphy (M), 1014 Michigan Avenue, Sheboygan, Wis.

F. D. Branson (M), 312 Pearl Street, LaCrosse, Wis.

Frank W. Boelter (N. M.), 6606 W. North Avenue, Wauwatosa, Wis.

Alfred E. Caesar (N. M.), Menomonee Falls, Wis.

A. A. Andrews (N. M.), 264 W. Broadway, Waukesha, Wis.

Zone Code Compliance Committees

ZONE 1

Edward V. Hanley (M), 1653 N. Farwell Avenue, Milwaukee, Wis.

Alfred Heiden (M), 1521 W. Wright Street, Milwaukee, Wis.

William J. Aigner (N. M.), 1728 N. 54th Street, Milwaukee, Wis.

ZONE 2

L. C. Pugh (M), 1215 West Boulevard, Racine, Wis.

Jacob Zimmerman (M), 6104—22nd Avenue, Kenosha, Wis.

Wm. J. Hooker (N. M.), 923 Henry Street, Lake Geneva, Wis.

ZONE 3

Phil A. Schneider (M), 519 N. 8th Street, Sheboygan, Wis.

Emil F. Kletzmann (M), Randolph, Wis.

Herbert A. Fuge (N. M.), 127 Main Street, West Bend, Wis.

ZONE 4

S. W. Beers (M), Main and Bonson Streets, Platteville, Wis.

Donald W. Hickok (M), 142 E. Maple Street, Lancaster, Wis.

Peter J. Holzmann (N. M.), Box 753, Argyle, Wis.

ZONE 5

Fred Wigglesworth (M), 602 Waverly Place, Madison, Wis.

Robert Barnwell (M), 3925 Mineral Point Road, Westmorland, Madison, Wis.

Ellis A. Mendenhall (N. M.), 412 Washington Street, Watertown, Wis.

ZONE 6

Tom Long (M), 309 West College Avenue, Appleton, Wis.

George J. Kispert (M), 1014 Cedar Street, Green Bay, Wis.

H. A. McIntyre (N. M.), 211 Main Street, Menasha, Wis.

ZONE 7

Otto W. Marquardt (M), 120 N. 3rd Street, La Crosse, Wis.

L. C. Welch (M), 137—3rd Avenue, Baraboo, Wis.

Russel H. Lovold (N. M.), 907 King Street, La Crosse, Wis.

ZONE 8

To be handled temporarily by Zone 9 Committee.

ZONE 9

Charles Baumgardt (M), 314—1st Avenue, South, Wausau, Wis.

Joseph Stadler (M), 610 S. Central Avenue, Marshfield, Wis.

G. O. Toepfer

E. L. Hess (N. M.), 240 E. Grand Avenue, Wisconsin Rapids, Wis.

ZONE 10

To be handled temporarily by Zone 6 Committee.

ZONE 11

Robert O. Bartingale (M), 216 S. River Street, Eau Claire, Wis.

John J. Phalen (M), 119 Bay Street, Chippewa Falls, Wis.

Frank P. Deignan (N. M.), 737 Spring Street, Eau Claire, Wis.

ZONE 12

P. O. Solie (M), Barron, Wis.

E. J. Mally (M), 101 N. Main Street, Rice Lake, Wis.

Edward H. Huset (N. M.), Chetek, Wis.

ZONE 13

C. F. Mittag (M), 407 W. Main Street, Merrill, Wis.

J. E. Bonnie (M), 7 W. King Street, Rhinelander, Wis.

Andrew E. Fredericksen (N. M.), Minocqua, Wis.

ZONE 14

Wm. H. Eddy Company (M), 1706 N. 12th Street, Superior, Wis.

Joseph Stadler (M), 813—2nd Street, North, Ashland, Wis.

James H. Ellis (N. M.), 1421 Belknap Street, Superior Wis.

Selma, Ala., Adopts New Plumbing Code

The Selma, Alabama, city council has adopted a plumbing code which will insure plumbing work in the city being done by responsible firms, able to post a bond of $500 as insurance against damage to the city's sewers. All plumbers must also pass an examination. There was no opposition from individual plumbers who have been contracting work about the city and the ordinance went through its first reading.

Celebrates 80th Birthday, 53 Years in Plumbing Business

Friends and business associates paid tribute on August 12 to the 80th birthday anniversary of David A. Westbury of South Bend, Indiana, one of the early presidents of the Indiana Association of Master Plumbers, and still active in the plumbing and heating contracting business in that city.

Apparently impervious to the passage of the years, his hair untouched with gray, Mr. Westbury is daily at his desk as heating estimator and engineer for W. H. Burke in South Bend. He was the first vice president and one of the earliest presidents of the state association; has been for many years an honorary member of that body; and has been identified with association activities in his own city for nearly half a century.

David A. Westbury

Mr. Westbury dates the beginning of his years as a plumbing and heating contractor from 1881; but it was 10 years earlier that he qualified as a journeyman, after three years' apprenticeship in Rochester, New York.

He entered the contracting business in South Bend in 1886, and for many years thereafter he was one of the leading heating contractors of the city. He installed plants in the Oliver theatre, the Studebaker and Oliver factories, and in many industrial and business buildings. In 1908 he disposed of his business and took a traveling position with the Gould Manufacturing Company. His association with the W. H. Burke firm began in 1916, and has been continuous since that time.

Allentown Master Plumbers Hold Well-Attended Picnic in Rainy Weather

The Master Plumbers' Associations of Allentown, Bethlehem and Easton, Pa., recently held their annual outing with a good attendance in spite of the fact that it took place on a rainy day. Many inside games were played and refreshments were served all day. In the evening the entire party enjoyed a clambake.

Among the guests at the outing were: State President Wm. A. Schneider of Scranton, State President Harry A. Saeger of Allentown, State Secretary James H. Lally of Olyphant, National Director Walter C. Williams of Wilkes-Barre, and Jas. H. Lutz, Jr., of Harrisburg, chairman of the

State Code Compliance Committee, and John Newham, president of Harrisburg Association.

The outing committee consisted of Fred Fehl, chairman; Harry A. Saeger, Monroe Fry, all of Allentown; Joseph Scattene, Harry Dietrick and Robert Burlingame, all of Bethlehem; W. A. Stoltz and Charles H. Weaver, all of Easton.

Chicago Closes Golf Season with Big Tournament

The Plumbing Trades Golf Association of Chicago, comprising master plumbers and supply men, held their final golf tournament of the 1934 season at River Forest Golf Club on Thursday, October 11th. It was one of the best attended meets held during the past summer, 75 members and guests being in attendance. This season was also the most successful one in point of attendance since 1929.

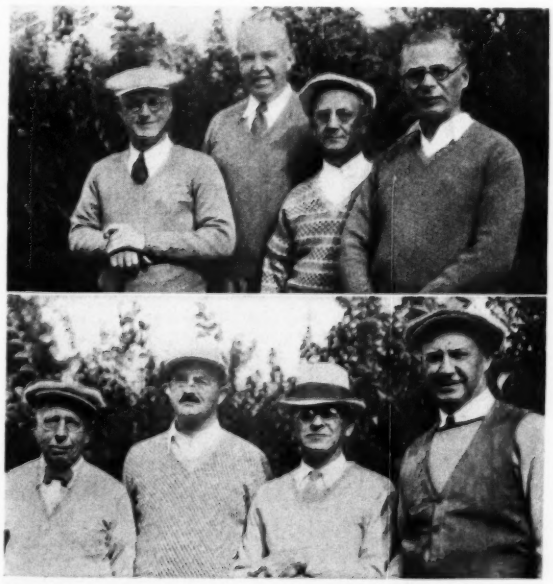
The association cup was won by Joe Comer of Crane Company with a low net of 287 for the best four games shot during the season. As this was his third leg on the cup it gives Mr. Comer permanent possession of the trophy, but generously he immediately donated the cup to the Association as a permanent trophy to be played for each year. This also gave him a beautiful wine set which was the season prize for the season low net.

Fred J. Wagner, in Class B, with 313 for his best four games won a similar trophy as first prize in Class B.

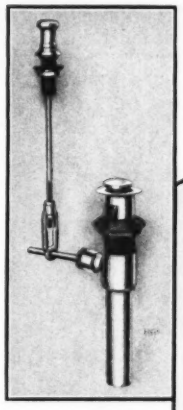
In tournament prizes, Class A, Howard Doyle with an 80 gross, 8 handicap and 72 net won first prize. Ralph Reedy with an 84 gross, 9 handicap and 75 net was second, and G. Mahoney with a 95 gross, 20 handicap and 75 net won third prize.

In Class B the first prize was won by P. J. Brown with an even 100 gross 23 handicap and 77 net. The second prize was won by William Love with 102 gross, 25 handicap and 77 net, and the third prize went to Charles Gazin with a 99 gross, 21 handicap and 78 net.

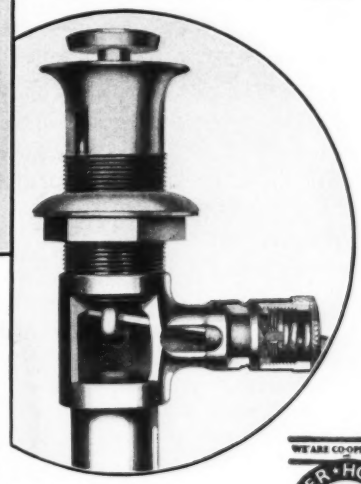
The blind bogey prize, a silver cocktail shaker, was won



Top row, left to right: H. C. Yelton, M. G. Henderson, L. T. Braun and C. E. Barrows. Bottom row, left to right: J. W. Stevenson, E. E. Bolte, Joseph Hoffrichter and George Dickerson. From photographs taken at a Chicago golf tournament



CLICK IT'S OPEN
CLICK IT'S CLOSED



● The Hays Snap-Action Pop-Up Lavatory Drain is built for a lifetime of trouble-free service. Tests equal to 25 years of performance left it as good as new. It works like a Snap-Switch.

CLICK it's closed tight — stopper seat ground by hand. Stopper of lock type.

CLICK it's open w-i-d-e for speedy draining.

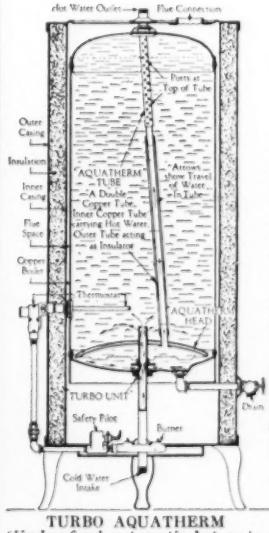
Furnished in 2 neat trims, it's built to lead the parade. Write for full detail and descriptive literature.

WE ARE CO-OPERATING BETTER HOUSING PROGRAM

HAYS MFG. CO.
ERIE . . . . . PA.

HAYS

BETTER HOUSING PROGRAM



TURBO AQUATHERM
(Under fired automatic hot water storage system)
More hot water for less money.

MEANS MORE BUSINESS FOR YOU

Don't Make the Mistake of Recommending Out-of-Date Equipment!

Dahlquist automatic hot water storage tanks fitted with the patented TURBO and AQUATHERM are as far advanced over other hot water boilers as the airplane is over the stage coach.

Dahlquist patents cover the only fundamental improvement made in hot water storage tanks during the past 40 years.

These new inventions by Theodore W. Dahlquist are supplied in all DAHLQUIST COPPER BOILERS and absolutely stop sediment from forming on the bottom of the boiler. No need to drain a Dahlquist boiler every few weeks. The TURBO prevents sediment from forming — keeps the hot water always crystal clear, fit for drinking — prevents costly burnouts.

The AQUATHERM reduces fuel cost 50%. Whether your need is for a common range boiler, an automatic hot water storage system or a commercial heavy pressure storage boiler, learn more about these remarkable inventions before you order.

Write for descriptive catalog.

DAHLQUIST
MFG. COMPANY
60 W. 3d St., So. Boston, Mass.

2000 Gal. Boiler

BURKS PATENTED PUMPS WATER SYSTEMS ARE *Different and Better*

All Models Guaranteed 100% Self Priming

APPROVED BY HEATING ENGINEERS EVERYWHERE!

The Burks Return-to-Boiler Unit illustrated below has PROVED its reliability. It has EARNED its splendid reputation on sheer merit. Built-in QUALITY makes for extreme dependability in HARD SERVICE.

Powerful suction lift is *vital* in handling hot water. The Burks pump *has* what it *takes* to pump hot water into heating boilers. As long as it REMAINS WATER, Burks pumps will handle it without vapor binding. They are 100% self-priming in ANY kind of service.

SERIES 4700

The Burks Franchise is *profitable*. You must make and be able to *keep* a profit to remain in business.

Write for Catalog No. 34 for complete details.

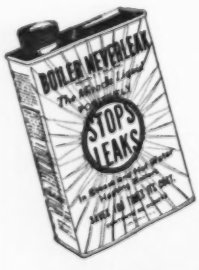
DECATUR PUMP COMPANY DECATUR, ILLINOIS.

Magic Figures!

3 BIG ADVANTAGES when you use Boiler Neverleak. 1. It searches out the leak. 2. It plugs it. 3. The heat bakes it into a PERMANENT REPAIR. It does a *thoroughly satisfactory job* you can stand back of!

$5,000,000

Our five million dollar guarantee is added assurance of Boiler Neverleak's miracle qualities. Ask us to send you proof of its superiority.



31 YEARS OF EXPERIENCE in making stop-leak compounds makes us *pioneers* in this field. *You* don't have to experiment! We have done that for you.

Manufactured only by

Liquid Veneer Corporation

Fort Erie North, Ont. **Buffalo, N. Y.**

BOILER NEVERLEAK

by Perry Russell with a net 79. The guest prize was won by Ray Garland with a gross 78, 9 handicap and net 69.

George Hill, a master plumber of Clearing, Ill., a guest of Henry P. Reger, played his first game of golf and was awarded a prize for finishing the 18 holes.

With a temperature in the 70's it was an ideal day for golf and brought out a very large attendance.

The prizes were distributed at the dinner in the evening, which was presided over by Ed. Mortimer, and each member in attendance introduced himself. The prizes were announced by the official scorer, William Redieske, and distributed by Secretary Peter M. Munn.

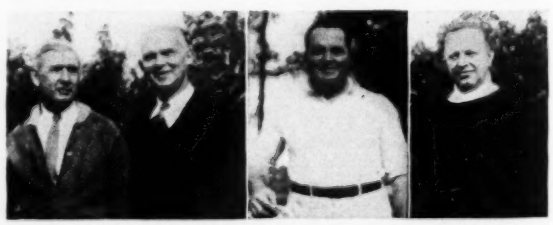
Mr. Mortimer who has served as chairman during the past year was given a rising vote of thanks in appreciation of his services in that capacity.

William Redieske was unanimously elected chairman of the Golf Association for the coming year. He was nominated by Henry P. Reger who organized the Golf Association about 7 years ago.

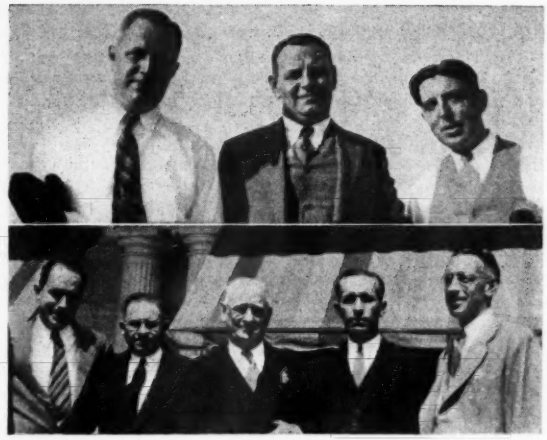
The flight winners were: W. Staecher, Wm. P. Arnold, R. J. Weber, Fred Ruhnke, Carl Nilson, James Fettes, Porter West, Harold Burr, E. C. Wagner, H. W. Mollison, W. N. Barr, E. Graves, Kent Clow, Frank Fabbri, Carl Baldwin and W. D. Nordhaus.

The following are the individual scores made at the tournament:

Player	G.	H.	Net	Player	G.	H.	Net
Wm. P. Arnold..	100	21	79	Wm. Lau	102	25	77
Carl Baldwin....	97	13	84	John S.Mackenzie	110	16	94
W. Barr	108	24	80	T. G. Mahoney..	95	20	75
Chas. Barrows..	101	18	83	George Matthews	125	37	88
John Blair	109	27	82	Milton Miller....	101	15	86
James Bradley..	105	24	81	H. W. Mollison..	88	12	76
P. J. Brown.....	100	23	77	Ed. Mortimer ..	104	19	85
Harold Burr ...	87	10	77	Peter M. Munn..	110	22	88
John Bushnell ..	111	19	92	Carl Nilson	95	10	85
R. M. Cavanaugh	122	22	100	W. D. Nordhaus.	95	19	76
Kent Clow	87	11	76	Henry O'Callag-			
Joe Comer	83	8	75	han	99	12	87
Roy DeVar	98	19	79	Wm. Purcell ...	96	19	77
A. E. Digree....	103	15	88	Ralph Reedy ...	84	9	75
H. Doyle	80	8	72	Henry P. Reger	106	21	85
Chas. A. Dreier.	107	22	85	E. W. Rietz.....	94	17	77
Tony Dvorak ...	129	35	94	F. H. Ruhnke...	94	18	76
L. P. Eaton	122	35	87	Perry Russell ..	109	30	79
Frank Fabbri ..	96	17	79	Harry Ryan	89	12	77
James W. Fettes	102	21	81	R. V. Sawhill...	104	22	82
D. Ganley	110	20	90	Herman Scheel.	110	27	83
Roy Garland ...	78	9	69	Robert Sells ...	93	12	81
Chas. Gazin	97	21	78	Phil Sieben	104	19	85
E. Grooes	92	15	77	Wm. J. Spillane.	90	14	76
John Guldan ...	98	19	79	E. Stevenson ..	97	13	84
W. Haeder	89	10	79	Herman Strauss.	116	20	96
G. C. Hagbloom.	104	24	80	Henry Swade ..	108	23	85
Wm. F. Hildeman	102	22	80	E. C. Wagner...	111	27	84
George Hill	142	40	102	Fred Wagner ..	101	24	77
George Hoffman	107	25	82	W. W. Watson..	101	20	81
Chas. W. Jones.	98	17	81	Rupert J. Weber	98	22	76
Wm. F. Knauss.	117	24	93	Porter West....	89	12	77
Cy Larson	98	18	80	A. Wilder	98	15	83



From left to right: C. T. Davis and J. H. Milliken, W. P. McFarland and W. H. Lotts. From photographs taken at a Chicago golf tournament



At the Orange's Outing. Top row, left to right: Ken Cosgrove, manager of Orange Branch of W. V. Egbert & Co., Inc.; H. A. Johnson of East Orange, and Wm. J. White of Thatcher Co. Bottom row, left to right: Harold Trapp of American Radiator Co.; Chas. F. Rothfuss, president of W. V. Egbert & Co., Inc.; W. H. McKinney of W. V. Egbert & Co., Inc.; Frank Obrecht of Dunphey-Smith Co., and Walter F. Johnson, manager of the Newark Branch of American Radiator Co.

New Jersey Plumbing and Heating Trade Golfers Hold Successful Tournament

The Plumbing and Heating Trades Golf Association of New Jersey held its September tournament at the Essex Fells Country Club at Caldwell, N. J. Although the day was cloudy and the sky looked at times like rainy weather, twenty-three members and guests were in attendance and played twenty-seven holes on a course that was in excellent shape.

In the morning nine holes' kickers handicap was played, Chester Morton Peirce winning first prize and Ray Moody receiving second prize.

In the afternoon 18 holes were played, the prize winners and their scores being as follows:

Class A: First prize, W. T. Rogers, net 72; second prize, A. B. Cashman, net 73; third prize, F. Engelberger, net 77.

Class B: First prize, S. H. Blackwood, net 87; second prize, C. Carlson, net 88; third prize, C. M. Peirce, net 89.

The guest prizes were awarded to W. C. Clift and John G. Keller.

W. T. Rogers with a net 72 won his first leg on the new cup.

The scores of the 18 holes afternoon game follow:

	Gross	Net		Gross	Net
F. L. Robinson....	98	83	J. Miners	107	82
F. C. Stille.....	87	83	M. Swanson	135	97
H. S. Officer.....	108	85	J. Seifert	109	91
W. T. Rogers.....	90	72	C. Carlson	128	88
F. Engelberger...	96	77	H. A. Berla.....	No card	
C. M. Peirce.....	115	89	F. McBride*	No card	
A. Gasewind	115	90	W. B. Frethway*.	No card	
S. H. Blackwood..	116	87	John C. Keller*...	108	
A. B. Cashman...	100	75	W. C. Clift*.....	94	
Ray Moody	124	104	S. F. Wilson*....	108	
D. Snyder	101	79	W. Gabosh*	94	
J. M. Buday.....	133	95	*Guest.		

The October tournament of this association was held at Cedar Ridge Country Club, near Livingston, N J., on Thursday, October 11.

The kickers' prize went to F. Robinson, and E. E. Elwood won the guest prize.

The prize winners in the afternoon game were: Class A—First prize, D. Snyder, net 81; second prize, F. C. Stille, net 81; third prize, J. Powell, net 82; fourth prize, F. Robinson.

WALLS WON'T HIDE THE FAULTS of POOR PIPE

"Good enough" methods are not good enough for Chester

Sooner or later it "gives itself away" — and GIVES AWAY some good customer to a competitor. That's why it pays you to protect your customer's interests and your own with pipe that has won a reputation on a basis of performance.

Chester Pipe means years of trouble-free service . . . and easy to install. Chester Pipe is built on a quality basis and backed by a seven-fold inspection.

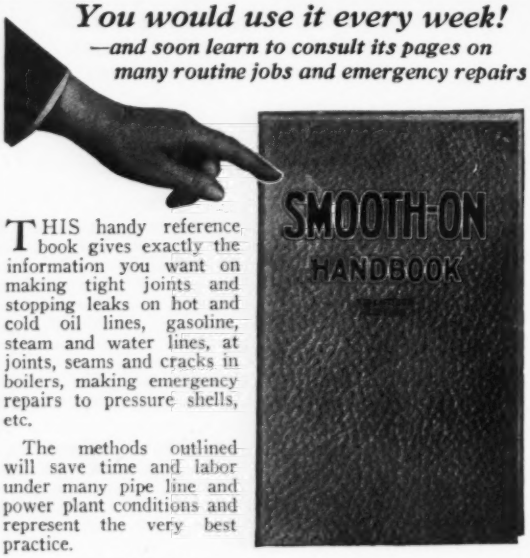
Nearness to your market enables us to assure you of prompt and economical delivery of Chester Pipe. Write for full particulars.

SOUTH CHESTER TUBE CO.
CHESTER, PA.
New York Office: 30 Church Street
Pittsburgh Los Angeles Tulsa San Francisco Houston Fort Worth

CHESTER STEEL PIPE

You would use it every week!

—and soon learn to consult its pages on many routine jobs and emergency repairs



THIS handy reference book gives exactly the information you want on making tight joints and stopping leaks on hot and cold oil lines, gasoline, steam and water lines, at joints, seams and cracks in boilers, making emergency repairs to pressure shells, etc.

The methods outlined will save time and labor under many pipe line and power plant conditions and represent the very best practice.

With Smooth-On in your store room and this booklet on your desk, you will be ready for prompt and effective attention to many emergencies.

Get the booklet from us and get Smooth-On No. 1 in 1- or 5-lb. tin or 25- or 100-lb. keg from your nearest supply house, or if necessary, from us direct.

Smooth-On Mfg. Co., Dept. 12, Jersey City N. J.

***Do it with* SMOOTH-ON**

ATTENTION!

Are you taking full advantage of the opportunities offered to you by DOMESTIC ENGINEERING?

Do you use regularly the departments organized to help you in handling any problem you encounter in your business?

If you do, then you already know the great help that is derived from a subscription to DOMESTIC ENGINEERING. If you do not, we invite you to get in touch with the editorial department the next time you are stumped.

You can get help regardless of what your problem may be. You can get help on technical problems, merchandising, legal matters, buying information, any thing that comes up in your everyday business. And your inquiries are handled by outstanding authorities in your industry.

If you use this reader's service, then you are one of the satisfied readers of DOMESTIC ENGINEERING. If you don't, then we suggest that you use this service the next time you have a problem, difficult to solve. And use it as often as you please.

DOMESTIC ENGINEERING
1900 PRAIRIE AVE., CHICAGO

net 82. Class B—First prize, J. A. Byrne, net 73; second prize, C. Peirce, net 74; third prize, W. H. Lee net 75; fourth prize, M. Swanson net 79.

J. A. Byrne won the first leg on the cup with 73 net. The scorekeeper's record of the afternoon game follows:

	G	H	Net		G	H	Net
S. H. Blackwood	108	29	79	F. C. Stille	85	4	81
W. H. Lee	111	36	75	C. M. Peirce	100	26	74
Jas. A. Byrne	106	33	73	F. J. Engelberger	103	19	84
J. Wallwork	122	30	92	E. E. Ellwood (Guest)	117		
D. Snyder	103	22	81				
J. Powell	92	10	82	M. Swanson	117	38	79
F. Robinson	97	15	82	C. Carlson	125	40	85
J. M. Buday	124	38	86	J. Seifert	114	18	96
A. R. Gasewind	111	25	86				

New Trade Literature

Folder Illustrates Boiler Plug

The Croessant Company of Reading, Pa., is distributing a folder describing and illustrating its boiler plug, by the aid of which any plumber can stop a leak in a range boiler quickly, easily and permanently.

Condensed Catalog of Pipe Tools

The Borden Company of Warren, Ohio, has just issued a condensed catalog of its pipe tools, consisting of ratchets, swivel pipe reamers, square-built wheel cutters, square-end cutters for all kinds of tubing, pipe cutters, pipe threaders, stocks and dies, pipe machines, power adapters and power drivers.

Folder on Gas Water Heaters

The Philadelphia Stove Company of 1631 North Fifth Street, Philadelphia, has published a folder illustrating and describing some of its gas water heaters. The heights of the casings of these heaters varies from 19 to 23¼ inches. Their lengths of coil runs from 14 ft. to 20 ft., and their shipping weights are from 32 lb. to 38 lb.

Issues Folder Entitled "Thumbs Down on Rust"

Republic Steel Corporation of Youngstown, Ohio, has just issued a neat folder under the title of "Thumbs Down on Rust," illustrating and describing its Toncan iron, a modern alloy of refined open hearth iron, copper and molybdenum, which has a great resistance to rust and corrosion. Fifteen reproductions of photographs are shown in this folder, illustrating places where this metal is rendering good service.

Bulletins on Swimming Pools

The Everson Filter Company of 627 West Lake Street, Chicago, has just issued two bulletins, "Plunge in Purity with Safety" and "Proposals, Specifications and Suggestions for the Construction and Installation of Swimming Pools." The first bulletin explains the value of proper operation and maintenance of a swimming pool, and the second tells how swimming pools can be equipped to operate on up-to-date methods to insure sterility and clarity of the water at all times. It also describes and illustrates a new series of chlorinators, comprising the electrolytic cell, and vacuum gas feed and solution feed types.

Bridgeport Brass Co. Issues Copper Water Tube Booklet

Bridgeport Brass Company of Bridgeport, Conn., has just issued an attractive booklet, "Bridgeport Copper Water Tube," 20 pages, 8¼x11 in. in size, and bound in a cover that looks like hammered copper. The booklet illustrates and describes this company's copper water tube and its use in underground water service installations, underground gas lines in corrosive soils, interior plumbing for both hot and cold water, steam and hot water heating installations, oil burner piping, from underground and interior tanks, refrigerating systems for apartment houses, cooling coils for

soda fountains, lawn sprinkler systems, private water supplies, swimming pools, air conditioning equipment, etc. The booklet emphasizes the point that this copper water tube is at least 99.9 per cent pure copper.

Catalog of Non-Clogging Centrifugal Pumps

Economy Pumping Machinery Company of 3431 W. 48th Place, Chicago, has just issued bulletin F534, consisting of 16 pages, 8½x11 in., illustrating and describing pumps for handling of solids. These pumps have waterways sufficiently large to pass any solid which will go through the connecting pipes. For instance, a 10-in. pump will pass 8-in. solids. Capacities range from 50 gallons per minute to 10,000 gallons per minute at heads up to 120 ft. The bulletin also contains capacity tables, outline dimensions, etc.

John Douglass Co. Issues Health Bulletin

The John Douglas Company of Cincinnati, Ohio, has just issued a bulletin, "Civilization's Greatest Menace," telling how to avoid water-borne diseases by eliminating the danger of their source, namely cross-connections in plumbing fixtures. The bulletin is divided into the following chapters: The Chicago Epidemic of Amoebic Dysentery, What Is a Cross-Connection? What is Back-Siphonage? The Answer to Cross-Connections in Toilet Bowls, The Siphon-Proof Principle and How It Operates to Stop Back-Siphonage, and What Siphon-Proof Safety Means. The company's siphon-proof closet bowl is also illustrated and described in detail in this bulletin.

Andrew Young, son of the late Andrew Young, one of the first presidents of the National Association of Master Plumbers, passed away at his home in Oak Park, Ill., on Monday, October 15. He was a journeyman plumber and a member of the Chicago Journeymen Plumbers' Union. He is survived by his widow, one son, and three daughters.

The Old Metal Market

New York

(Dealers' Buying Prices, Cents a Pound)

No. 1 Heavy copper and wire	5.50	to	5.75
Light copper	4.62½	to	5.00
Heavy yellow brass	3.00	to	3.12½
Clean light brass	2.50	to	2.75
New brass clippings	4.50	to	4.75
Zinc	1.75	to	2.00
Aluminum turnings, borings	5.00	to	5.50

Chicago

No. 1 Heavy copper and wire	5.37½	to	5.62½
No. 2 Heavy copper and wire	4.87½	to	5.12½
Light copper	4.00	to	4.25
No. 1 Composition red brass	4.12½	to	4.37½
Heavy yellow brass	2.50	to	2.75
Light brass	2.00	to	2.25
New brass clippings	3.87½	to	4.37½
Cocks and faucets	3.12½	to	3.37½
Old zinc	1.87½	to	2.12½
Solder joints (close cut)	4.50	to	5.00
Block tin pipe	39.00	to	41.00

Convention Dates

December 3 to 8, 1934.—The Eleventh National Exposition of Power and Mechanical Engineering, at Grand Central Palace, New York City.

January 28 to 31, 1935.—A. S. H. V. E.—The forty-first annual meeting of the American Society of Heating and Ventilating Engineers, at Buffalo, N. Y.

Rural Plumbing—

(Continued from page 49)

stand also, that strict rules are followed in seeing to it that all bidders estimate on identically the same specification.

Subsistence Homesteads Projects:

Project	No. of Individual Homesteads
Industrial	
Birmingham, Ala.	300
Jasper, Ala.	100
Phoenix, Ariz.	300
Los Angeles, Calif.	140
Wilmington, Del.	70
Lake County, Ill.	90
Decatur, Ind.	48
Granger, Iowa	50
Bastrop, La.	50
Duluth, Minn.	40
Austin, Minn.	44
McComb, Miss.	25
Laurel, Miss.	25
Tupelo, Miss.	25
Meridian, Miss.	25
Hattiesburg, Miss.	24
Rochester, N. Y.	33
Youngstown, Ohio	139
Tulsa, Okla.	48
Taylors, S. C.	40
La France, S. C.	20
Houston, Tex.	80
Dallas-Ft. Worth, Tex.	80
Wichita Falls, Tex.	50
Three Rivers, Tex.	50
Beaumont, Tex.	50
Marshall, Tex.	35
Longview, Wash.	60
Co-operative Industrial	
Hightstown, N. J.	200
Dayton, O.—(5 Proj.)	200
Rural	
Jasper-Putnam Counties, Ga.	500
Richton, Miss.	53
Pender County, N. C.	300
Stranded Groups	
West Frankfort, Ill.	220
Westmoreland County, Pa.	230
Crassville, Tenn.	350
Tygart Valley, W. Va.	270
Experimental	
Reedsville, W. Va.	200
Special	
Shenandoah National Park, Va.	340

A second list of projects still in the planning stage, but with the number of homesteads not yet given out is as follows:

Alabama	1 project	Michigan	1 project
Arkansas	3 projects	Montana	2 projects
Colorado	2 projects	North Carolina	1 project
Connecticut	1 project	Pennsylvania	3 projects
Florida	2 projects	South Carolina	1 project
Kentucky	1 project	Virgin Islands	1 project
Maryland	1 project		

Newark, N. J., Master Plumbers Hear Address on Federal Housing Act

Members of the Master Plumbers' Association of Newark, N. J., were hosts to the American Radiator Company and the Standard Sanitary Manufacturing Company at the Association room, 222 Market Street, Newark, on Thursday, October 11.

M. T. Banderman, president of the Newark Association, called the meeting to order and turned it over to Vice President Jos. Turbett, who is also chairman of the association's educational committee.

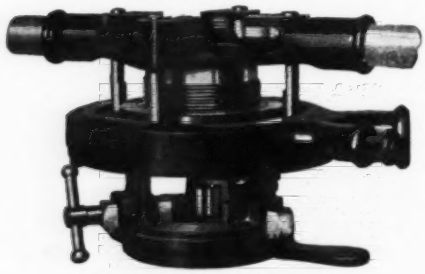
Mr. Turbett, in turn, introduced Walter Johnson, manager of the Newark branch of American Radiator Co., who conducted an educational meeting on the Federal Housing Act and presented a sound, moving picture, entitled "Your Day Has Come," which dealt primarily with the possibilities of business under this Act and how this business can be handled by the master plumber and heating contractor through the financing plan offered by the American Radiator and Standard Sanitary Corporation.

The Standard Sanitary Mfg. Co. was also represented by A. M. Maddock, vice president; Chas. Bradford Wynne, manager of the Newark branch; M. D. Rose, Eastern district sales manager, and John Campbell, assistant Eastern district sales manager, both of American Radiator Co.

Following Mr. Johnson's address, the activities of the State Code Compliance Committee were explained, and the master plumbers were told how they are to comply with the Code.

NYE TOOLS

Receding Stock
(IMPROVED)
With Adjustable Guide



NO. 1-A RATCHET TYPE

The added feature of the Adjustable Self Centering Guide, which eliminates all loose bushings and thumbscrews, makes the improved Nye Receding Stock a most desirable tool.

The No. 1 and 1A Stocks are identical except that the No. 1A as illustrated is equipped with a ratchet for use where space is restricted.

Both stocks have a capacity of from 1 to 2 inches.

ASK YOUR JOBBER

***The* NYE Tool & Machine Works**

4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

KENNEDY
Radiator Valves

DESIGNED in accordance with standard roughing-in dimensions and include every desirable type—angle, straightway, and offset corner, with or without unions, right or left-hand and with wheel or lock shield and key on operating stem. Kennedy Valves, Malleable Iron and Brass Fittings help to speed up pipe fitting jobs by their uniform excellence and ease of connecting up to pipe lines. You can obtain Kennedy Products from your local supply house.

The Kennedy Valve Mfg. Co.
ELMIRA, N. Y.

Warehouses and Representatives in Principal Industrial Centers

NRA
WE DO OUR PART

New Contractors and Incorporations

New Britain, Conn.—The I. Levine Plumbing & Heating Company has been incorporated with a capital of $25,000. The incorporators are Isadore Levine and Benjamin Levine.

Detroit, Mich.—The Nussbaum Company has been incorporated with a capital of $2,000, to conduct a plumbing and heating business at 11612 Livernois Avenue.

Detroit, Mich.—C. A. Franklin, Inc., is the name of new plumbing and heating business at 14887 Sorrento Avenue.

Maplewood, Mo.—The Hogan Heating Company has been incorporated and has started in business at 3622 Greenwood Boulevard. The incorporators are Leo P. Schatzman and W. M. Reed.

Los Angeles, Calif.—The S. & R. Plumbing Company has started in business at 2113 South Central Avenue, under the management of Manuel Silverberg and Hyman Rosenthal.

Los Angeles, Calif.—Jacob Pinsky and Walter A. Ahlers have formed a partnership under the name of Pinsky & Ahlers and have opened a plumbing and heating business at 2417 Malabor Street.

Los Angeles, Calif.—The Central Plumbing Company is the name of a new concern which has started in business at 1217 East Seventh Street. John Powers of San Gabriel, Calif., is a member of the new firm.

Charlotte, N. C.—The Eveready Plumbing & Heating Company has been incorporated by T. W. Wilson and William Phillips and has engaged in business at 115 North Meyers Street.

Detroit, Mich.—Coffey & Granlund, Inc., is the name of a concern, which has just been incorporated with a capital of $10,000, to conduct a plumbing, heating and refrigerating business.

Miami, Fla.—The Florida Plumbing & Electric Company has been organized by J. M. Guthrie, E. A. Guthrie and M. J. Rougham.

Los Angeles, Calif.—The Beverly & Hollywood Plumbing Company has engaged in business at 1325 North La Brea Avenue, under the management of H. J. Sketchley.

Portland, Ore.—C. S. Whitcomb and Fred E. Boyce have organized the Portland Plumbing and Heating Company.

Hollywood, Calif.—Bert Collier has opened a plumbing and heating business at 1315 North La Brea Avenue under the name of the Beverly and Hollywood Plumbing Service.

Los Angeles, Calif.—Warnes & Wilson is the name of a plumbing firm which has just started in business at 1147 North La Brea Avenue. The partners are Edward Warnes and Thomas Wilson.

Business Changes

Kellogg, Idaho.—E. Ryckman has purchased the plumbing and heating business of A. V. Kunkle at 403 Main Street.

Buffalo, N. Y.—Stephen Schlatterer has moved his plumbing business from 360 La Salle Avenue to 69 Belvedere Road.

Brooklyn, N. Y.—Alex. Rotker has moved his plumbing and heating establishment to 6310 Bay Parkway. The change took place October 1.

New Haven, Conn.—Thomas J. Groark Co., Inc., plumbing and heating contractors, 285 State Street, has succeeded Sheahan & Groark, continuing the business at the same location.

ACTIVITIES

By DOROTHY EDWARDS

Chicago South Side Auxiliary Very Active

The South Side Women's Auxiliary of the Chicago Plumbing Contractors' Association met at the Broadview Hotel, 5540 Hyde Park Blvd., on Wednesday, October 3rd, at 12:30 for its regular monthly meeting. Twenty-two members and one guest were present.

After an excellent lunch the regular order of business was taken up by Mrs. Compton, the presiding officer, who told of a visit to Mrs. Fred Hager, congratulating her on the arrival of a new daughter. Mrs. Hager, who is state president, is also a South Side member. Mrs. W. Retter told of a Halloween and Hard-Time Party to be given at the home of Mrs. Walter Shaw, 7209 Michigan Avenue, Saturday afternoon, October 27. The program will consist of cards and lunch.

The hostesses for the day were Mrs. F. Holliday Mrs. J. Delehant and Mrs. H. P. Reger. In the fabe of "500" the prize was won by Mrs. L. Hudson. In bridge Mrs. Kratz and Mrs. R. Waller took high honors.

Rock Island and Moline Auxiliary Opens Season

The Women's Auxiliary to the Rock Island and Moline, Ill., Master Plumbers' Association held its first fall meeting at the home of Mrs. P. H. Kale in Rock Island on Monday afternoon, October 8th. All members were present.

At the business session, a cash donation was voted to the Salvation Army Drive, now in progress.

After the business meeting, bridge was played. The holders of high scores were Mrs. E. L. Householder, Mrs. Albert Rosenfield and Mrs. A. N. McNeil. The hostess served refreshments after the games. The next meeting of the Auxiliary will be held on Monday, November 12, at the home of Mrs. E. L. Householder, 2706 20th Avenue, Rock Island.

Minneapolis Auxiliary Members Attend Four Parties in October

Members of the Women's Auxiliary of Minneapolis Retail Plumbers' Association have had a very busy October, having attended two luncheons, a card party and a gala night dance.

On October 2, Mrs. Oscar G. Johnson entertained Circle No. 3 at a luncheon at the Candle Glow Tea Rooms. Her guests were Mesdames: Royal Berg, F. Bartel, Edmund Copperud, Hugo Guntzel, H. C. Harvey, J. D. Keefe, W. Nary, A. G. Nelson, B. D. Miars, Harvey Strader, H. M. Porter and G. Shoppe.

On October 4, Mrs. Walter Bell gave an evening of bridge at her home. There were six tables, and Mrs. P. G. Gleason and Mrs. J. F. Martin assisted.

October 16, the Women's Auxiliary met at the home of Mrs. Edmund Copperud, 4110 Nicollet Avenue, for a 12:30 luncheon. Mrs. H. C. Harvey, Mrs. John Schultz and Mrs. Harvey Strader assisted the hostess.

The gala night dance given by the auxiliary was held at 310 East Hennepin Avenue, Minneapolis, on Thursday evening, October 25. Mrs. Oscar G. Johnson was general chairman, and she was assisted by the following committees: Dancing—Mrs. Royal Berg and Mrs. Harvey Strader. Cards —Mrs. W. Nary and Mrs. J. D. Keefe. Entertainment—Mrs. H. M Porter, Mrs. Edmund Copperud, Mrs. G. Shoppe, Mrs. F. Stiller, Mrs. A. G. Nelson, Mrs. H. C. Harvey and Mrs. B. D. Miars.

Hutchinson Auxiliary Opens Fall and Winter Season

The Women's Auxiliary of Master Plumbers Association, Hutchinson, Kans., has resumed its fall and winter series of meetings. The first gathering was held on Sept. 10 at the home of Mrs. M. M. Stevens. After the business session, a social hour was enjoyed.

Denver Auxiliary Opens Season after Two-Month Vacation

The Women's Auxiliary of Denver, Colo., has resumed its activities after a two-month vacation. The first meeting was held at the home of Mr. and Mrs. V. A. Kandorf, who served a delicious luncheon. Fourteen members and two visitors were in attendance. Cards were played, in which Mrs. Samson took the honors and Mrs. Demner won the hostess prize.

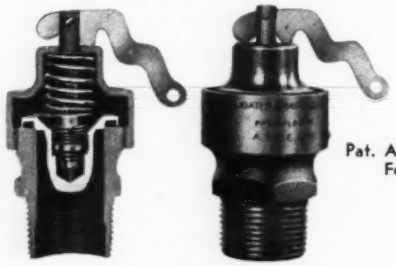
The second meeting was a card party, which was also held at the home of Mr. and Mrs. V. A. Kandorf, and it was a pleasant success. Mrs. Samson had high score and Mrs. Slattery low score at one table, and at another table Mr. E. B. Clayton was high and Mr. Stocking low. Mrs. V. A. Kiser was also awarded a prize. Refreshments were served.

Wisconsin Auxiliary Plans Pillow Case Card Party in Milwaukee

The Women's Auxiliary to the Wisconsin Association of Master Plumbers is planning to hold a pillow case card party on Friday evening, November 16, at the Elks' club in Milwaukee. Members of the auxiliary will donate door prizes, and the proceeds will be used for Thanksgiving and Christmas baskets for needy master and journeyman plumbers' families.

The Milwaukee Auxiliary wishes to express its appreciation to the Women's Auxiliary of the National Association of Master Plumbers in behalf of the daughter of one of its members, who received assistance from the Student Loan Fund. This loan helped the young lady through the last semester of her course at the Milwaukee State Teachers'

A RELIABLE



Pat. Applied For

POP SAFETY VALVE

Built entirely of heavy brass castings except for the oil tempered steel spring plated with Udylite, this valve, No. 2010, is absolutely corrosion-proof and conforms in every way to A. S. M. E. specifications for low pressure (15 lbs.) steam systems.

All machining is handled on a precision basis, maintaining close tolerances. Consequently, regardless of how long the valve remains stationary, it functions promptly when steam pressure rises above the safety point. It opens with a pop and closes again securely when the line has been relieved. Positive shut-off is assured by spring pressure action on the disc below the seat.

This valve may be turned at any angle with the center line of the pipe without interfering with its operation. It may be opened manually by either lifting or depressing the control lever.

For any type of boiler trimmings, including water gauges, compression gauge cocks, syphons, steam gauge cocks, etc., write to

CONSOLIDATED BRASS CO.
139 Summit Avenue Detroit, Michigan

No service is too severe for "ACME" Bibb Washers. "ACME'S" are made of an exceptionally tough black rubber compound and, as a consequence, hot and cold water which is so destructive to the ordinary washer holds no terrors for "ACME'S."

"ACME'S" Stand Up *in* Toughest Service

When "ACME'S" are installed faucet rapping and chattering become a thing of the past. Also of importance—"ACME'S" allow a full waterway and make a perfect seat.

Recommend "ACME'S" for customer satisfaction.

For your protection each washer is branded with the name "ACME."

LAVELLE RUBBER CO.
320 West Illinois Street CHICAGO

College, where she graduated last June. She is now busily engaged in social service work for the Milwaukee County, making investigations for the Dispensary.

Dayton Auxiliary Meets in Its New Headquarters

The Women's Auxiliary of Dayton, Ohio, held its September 20 meeting in its beautiful new headquarters in the K. of C. Hall, which was formerly the Barney's Homestead —the finest home in the city in earlier days.

A party arranged by the entertainment committee was recently held in the Home Stead Inn near Dayton. The thirty members present enjoyed themselves after a bountiful steak dinner by playing cards until a late hour, at which time prizes were distributed to the winners.

Queens Women's Auxiliary Makes Preparations for Barn Dance

The Women's Auxiliary of the Queensboro Branch Association of Master Plumbers of New York City held its regular monthly meeting on October 3 at the K. of C. Hall in Jamaica, L. I., and made arrangements for the annual barn dance which was scheduled to be held October 27 at the Masonic Temple at Queens Boulevard and Gown Street, Forest Hills, N. Y. A good orchestra was secured to furnish music for the dance.

New Britain Auxiliary Opens Fall Season

The Women's Auxiliary to the Master Plumbers' Association of New Britain, Conn., held its first meeting of the fall season on Thursday evening, October 11, at the home of Mrs. C. A. Andrews. After the business meeting, cards were played, with the award of prizes to Mrs. W. R. Fenn and Mrs. A. A. Mills. Upon the arrival of the members of the Master Plumbers' Association, a delicious lunch was served

Boston Auxiliary Opens Season in a Delightful Manner

The Women's Auxiliary to the Boston Association of Master Plumbers held its opening meeting of the season at the home of Mrs. James Gillespie, 11 Solon St., Newton Highlands, Mass., on Tuesday evening, October 16.

Besides being well attended by master plumbers and regular members, the following three guests were also present: Mrs. Scanlon of New York, Miss Smith, and Mr. and Mrs. McCarron.

The ladies spent part of the evening rolling bandages for the Faulkner Hospital.

The host and hostess entertained their guests in a most delightful manner. Delicious refreshments were served.

Newton Auxiliary Opens Season with Steak Dinner

The Women's Auxiliary to the Master Plumbers' Association of Newton, Mass., held its first meeting after the summer vacation at Bond's Restaurant in Watertown, Mass., on Wednesday, October 10. A steak dinner was served. Mrs. R. T. Leahy was hostess at this meeting, and Mrs. F. S. Warren presided. Several letters were read, and the sick committee made its report.

Following the meeting whist was played, the honors going to Mrs. N. Jepsen and Mrs. C. D. Kieser. The auxiliary prize, which was donated by Mrs. F. S. Warren, was won by Mrs. J. T. Ryan.

BAR SERVICE

Ideas for Those Who Sell and Install Mechanical Equipment for Restaurants and Taverns

Again, there is the Question of Pressures for Drawing Beer

IN restaurant and tavern work, the questions of pressures, how many glasses of beer in a barrel and the like, continually are coming up. It is impossible to give satisfactory answers unless the subject is understood well. An inquiry received just recently from one of our readers in Pennsylvania is typical and the answer is presented here for the assistance of all others who encounter it.

TO THE EDITOR:

Will you please answer the following questions in regard to beer pumps and the dispensing of beer: First, how much time is required to dispense a barrel of beer through the ordinary coil box system? Second, how much air at 15 lb. pressure per sq. in. is required to dispense a barrel of beer? Third, what is the temperature of air when compressed to 15, 25, 50, 75, 100, 200, 300, 400, 500, 600, 700, 800, 900 and 1,000 lb. per sq. in.? Fourth, how many times will air expand when reduced down to 15 lb. gauge from 20, 30, 40, 50, 60, 70, 80, 90 and 100 lb. per sq. in.?

Penn. K. O.

TO THE READER:

In order to obtain some authentic information for you we visited a prominent beer emporium and found that they were serving beer in glasses which were 2½ in. in diameter at the top on the inside and 1½ in. at the bottom and exactly 4½ in. high as shown in the sketch in Fig. 1. About ¾ in. on the top of the liquid was "bead" as the glass is served, but if allowed to stand until the bead has practically all gone back to a liquid form, it is found that the actual amount of liquid in a glass is about ½ in. from the top, making the depth of liquid some 4 in. The contents of the liquid in each glass may now be calculated as follows:

$2 \times 2 \times 0.7854 \times 4$ equals 12.56 cu. in.

the 2 in the above being the average inside diameter of the glass or

(2½ plus 1½) / 2 equals 2 in., av. diam.

We were advised that beer in this particular establishment was purchased in ½ barrel lots, the barrel having a capacity of 31½ gal. and a half barrel 15¾ gal. Allowing for counter slop, etc., they figure on getting a net of 15 gal. per half barrel delivered into the glasses for sale. Therefore, a barrel of beer would result in about 30 gal. of beer delivered into the glasses and in cubic inches amounts to

30 gal. × 231 cu. in. or 6,930 cu. in.

and the number of glasses that one barrel would make is shown in the following schedule:

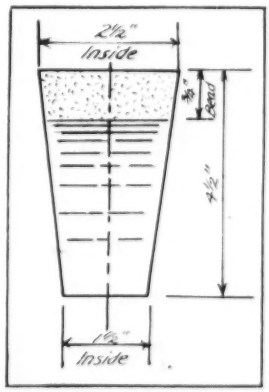


Fig 1.—Here are the dimensions of the glass which the consulting engineer who answered this question, found in a "prominent beer emporium"

1 bbl. equals 6,930 cu. in. / 12.56 or about 552 glasses
½ bbl. equals 3,465 cu. in. / 12.56 or about 276 glasses
¼ bbl. equals 1,733 cu. in. / 12.56 or about 138 glasses
⅛ bbl. equals 866 cu. in. / 12.56 or about 69 glasses

A checkup on the bartender showed that the average time to fill a glass of beer is about 3 seconds, although with several orders on hand the bartender can take three glasses in one hand and fill them in an average time of 2 seconds each. This is at a rate of 20 to 30 glasses per minute and is about the maximum that one man can draw. On the other hand, few, if any, bars draw beer at this rate; even a busy bar seldom drawing at an aver-

age rate for any length of time in excess of 10 glasses per minute because the glasses filled are in direct proportion to the number of customers entering or leaving if we omit from the consideration those who purchase more than one glass.

This gives as the minimum time in which a barrel could be emptied as follows:

	30 *glass rate*	20 *glass rate*	10 *glass rate*
1 bbl.	18 min.	28 min.	55 min.
½ bbl.	9 min.	14 min.	27 min.
¼ bbl.	5 min.	7 min.	14 min.
⅛ bbl.	2 min.	4 min.	7 min.

but we believe that the average rate would be only 25 per cent to 33 per cent of the above which would make the time three to four times longer. It will be seen that the time to empty a barrel of beer is dependent entirely on the number of customers except that it could not be emptied with one bartender serving at a rate in excess of the 30 glasses per minute. We are not positive that all breweries in the country are using barrels of this size but our corespondent easily can check this up in his locality; we do know that the size of glasses vary considerably and this has some bearing on the time although not a great deal as it takes longer to fill a large glass than a small one but the amount drawn is proportionately greater.

The second question—assuming that the 15 lb. air is at the same temperature as the intake air for the compressor—may be answered by saying that the amount of free air will be twice the cubic contents of the barrel or

$$\frac{30 \text{ gal.} \times 231 \text{ cu. in.}}{1728 \text{ cu. in.}} \times 2 \text{ or } 8.1 \text{ cu. ft. approx.}$$

For ½, ¼ and ⅛ bbls., the amount of air would be ½, ¼ and ⅛ of 8.1 cu. ft., respectively. If the air entering the barrel is slightly above the temperature at which it enters the compressor there will be slightly less air required while, if it is slightly below the temperature at which it enters the compressor, slightly more air will be necessary; this difference usually is not of sufficient amount to require special consideration.

The temperature of air when compressed rises but the air is cooled almost immediately by the water or air cooled compressor and any remaining heat usually is dissipated while the air is contained in the receiving tank and before it gets to the barrel. Therefore the relative volumes of air are in inverse proportion to the absolute pressures and the temperature may be considered as being constant as far as the initial and final pressures are concerned.

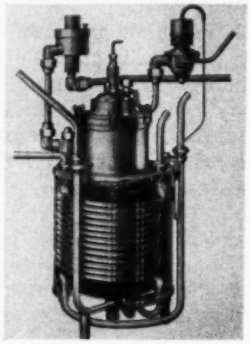
When air is stored at high pressures and is reduced through a reducing valve to lower pressures the temperature is lowered but again heat is picked up through the piping and tank, if any, so that the final temperature of the air may be considered as approximating the temperature at the high pressure. Under conditions of equivalent temperatures the air when reduced to 15 lb., from higher pressures will have the volumes multiplied by the following factors:

From 20 lb.....1.15	From 60 lb.....2.50
From 30 lb.....1.50	From 70 lb.....2.85
From 40 lb.....1.85	From 80 lb.....3.20
From 50 lb.....2.17	From 90 lb.....3.50
From 100 lb.....3.85	

Products for the Bar Service Dealer

Improved Beer Dispensing Unit

The unit which is shown is comprised of the well-known Liquid Zahm and a Frigidaire counter flow mechanical refrigeration system. Under the principle of counter flow action beer at its highest temperature coming from the barrel is not immediately subjected to



the utmost chill of the refrigerant. In passing through the coil surrounding the bottom of the tank the beer is gradually brought to the correct temperature at the lowest part of the coil and from there carried up to the regular inlet where it is held in the tank at the correct serving temperature by the controlled chill of the outer shell. Makers say that this new unit will control the temperature of the beer in the tank within a variation of two degrees, regardless of the amount of beer being drawn. Made by The Liquid Carbonic Corp., 3100 S. Kedzie Ave., Chicago, Ill.

Beer Saver and Coil Cleaner

The device shown is attached permanently to the compressed air system. With this device it is possible by the turn of a single valve to return the beer in the

pipes to the keg so that no beer remains in the pipes over-night. In addition the device operates as a beer pipe cleaner, employing both compressed air and water in connection with the customary cleaning compounds and abrasives. During the cleaning operation the action of the machine is reversible. It is made by Standard Automatic Coil Cleaner Co., 11 W. 42nd St., New York, N. Y.

Improved Gas Drum

The principal feature of the carbonic gas drum shown is the reserve valve which releases gas from an auxiliary chamber after the supply in the main section of the drum has been exhausted. This auxiliary chamber is sufficient for drawing 3 to 4 half-barrels so that there is ample time to order in a new drum. The valve mechanism is shown. The new drum is made by Avery Products Co., Inc., 133 West Bruce St., Milwaukee, Wis.

A Copper Polish

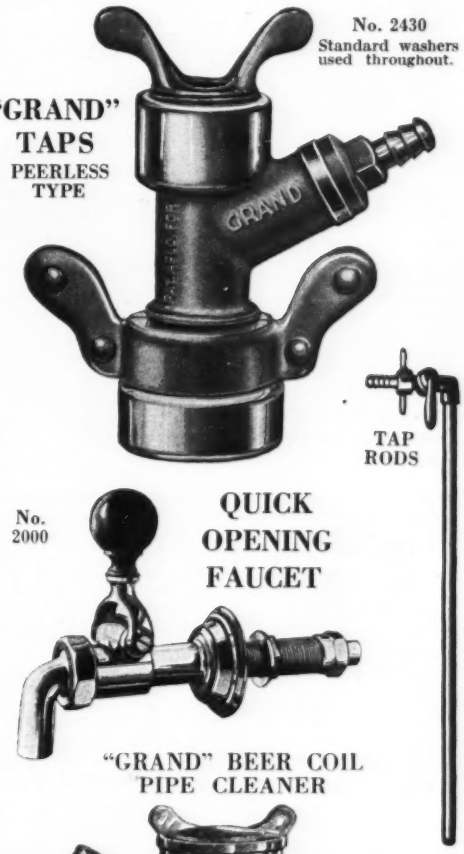
The company named below is offering an instantaneous copper polish which is also effective with brass, german silver, Monel or any polishable metal. Makers say that no hard rubbing is required and that the polish quickly removes acid stains, grease and any form of oxidation from the metal. May be used on either hot or cold metal to restore the brilliancy of newness. The polish comes in powder form, which, by adding water may be used in liquid or paste form if desired. Comes in 1 lb., 4 lb. and 12 lb. boxes. Made by J. C. Paul & Co., 922 Roscoe St., Chicago, Ill.

Draft Beer Unit

A great deal of ingenuity is being shown in meeting the demand for a beer serving unit in the home, the hotel room, or other places where a bar is not handy. The unit shown is of 16 gauge steel, 10 in. high. Equipped with standard filling bung. Tapping arm is inserted into special adapter of the container. Tapping arm is equipped with gas charge ample to discharge contents of container,

We recommend "GRAND" BEER DISPENSING EQUIPMENT

Once used—always satisfied. Now is the time to overhaul your equipment and check over your stocks. We have a complete line that will meet your most exacting requirements.



Write for our new beer dispensing equipment catalogue. It's free for the asking.

Manufactured by

GRAND HAVEN BRASS FOUNDRY
GRAND HAVEN MICHIGAN

BREWERY FITTINGS *tried* AND *proven*

MADE of the finest bronze, Rundle-Spence Brewery Fittings are accurately machined, carefully inspected and thoroughly tested before shipment. In actual service Rundle-Spence Fittings have been proven more than equal to their respective tasks.

Above: Filler Spring Valve

Below: Fermenting Spring Valve

FOR sixty-two years the Rundle-Spence organization has devoted its facilities to producing the finest grade of brass goods . . . your assurance that every item in its line must be good.

Send for Catalog on the complete line of Rundle-Spence Brewery Fittings and Beer Dispensing Equipment.

RUNDLE-SPENCE MFG. COMPANY
445 NORTH 4TH ST.
MILWAUKEE, WIS.

62 Years of Brass Manufacturing Experience.

GIVE YOUR CUSTOMERS

KLEEN-AIR

BEER PUMPS

Quiet, efficient and producing clean air UNIFLOW beer pumps are made in every size necessary to care for the largest or smallest establishments. New, low net price basis.

Write for special dealer proposition.

UNIFLOW MANUFACTURING CO. Dept. D, Erie, Pa.

Makers of Fine Precision Equipment Since 1931

WATER SYSTEMS—WATER SOFTENERS—WATER FILTERS—BEER PUMPS
BEVERAGE COOLERS—ELECTRIC REFRIGERATORS—CELLAR DRAINERS

You wouldn't think of missing your daily paper « « «

yet it does not begin to help you as your business paper does, so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.

DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE CHICAGO

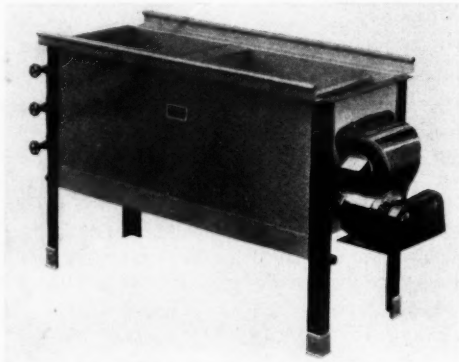
which is ⅛ barrel. Makers say that the unit may be stored in a refrigerator and beer will be preserved without spoilage if kept at proper temperature. Comes complete ready for tapping. Made by Marvel Metal Products Corp., 308 N. Michigan Ave., Chicago, Ill.

A Metal Polish

The polish referred to is made especially to clean and polish aluminum. The makers say that this has always been a difficult metal to clean and polish and that harsh abrasives will scratch the surface clean but will of course dull it. This paste is suitable not only for aluminum but for brass, chromium, copper, pewter, nickel, German silver, stainless steel and white metal. The polish, say the makers, will give a fine mirror-like finish and will not harm the hands. Made by The Vaporine Co., 216 W. Kinzie St., Chicago, Ill.

A New Dishwasher

The features stressed by the makers of the above dishwasher are the drainage trough which diverts all liquid refuse to prevent contamination of wash water; the scrap arrester traps all solid food particles; the water equalizer permits just the right amount of hot water to pass from the rinse tank into the wash tank. These



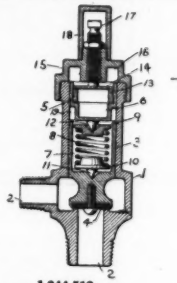
features maintain fresh wash and clean rinse water so that clean and sterile dishes are assured. Machine is made in three sizes. All models are 34 in. high and working height is 32 in. The machines can be equipped with gas burners, steam coils, or electrical heating elements. Body is either of steel, welded and galvanized, copper or stainless metal. The washer is manufactured by Bernard Gloekler Company, 1627 Penn Ave., Pittsburgh, Pa.

NEW IDEAS FROM PATENT OFFICE

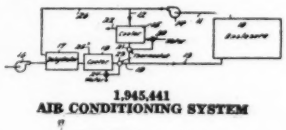
Heating Department

1,944,518. Temperature and Pressure Relief Valve Device. Luther D. Lovekin, Villa Nova, and Jean L. Le Gorre, Philadelphia, Pa., assignors to Kitson Company, Philadelphia, Pa., a corporation of West Virginia.

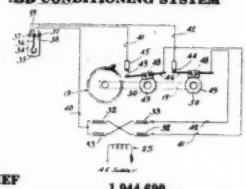
1,945,441. Air Conditioning System. Ernest Baldwin Miller, Baltimore, Md., assignor, by mesne assignments, to Chester F. Hockley, receiver for The Silica Gel Corporation, Baltimore, Md., a corporation of Maryland.



1,944,518
TEMPERATURE AND PRESSURE RELIEF VALVE DEVICE



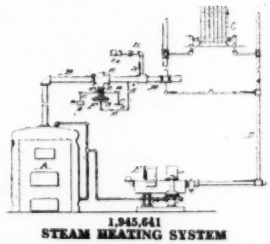
1,945,441
AIR CONDITIONING SYSTEM



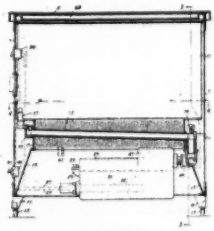
1,944,699
AIR CONDITIONING SYSTEM

1,944,699. Air Conditioning System. Duncan J. Stewart, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.

1,945,641. Steam Heating System. Irving C. Jennings, South Norwalk, Conn.



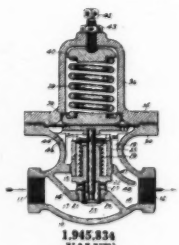
1,945,641
STEAM HEATING SYSTEM



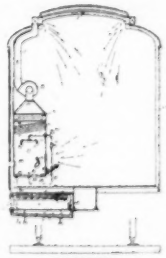
1,945,815
ELECTRIC STEAM RADIATOR

1,945,815. Electric Steam Radiator. John D. Landerman, Brookline, Mass., assignor to Electric Steam Heating Corporation, a corporation of Massachusetts.

1,945,834. Valve. Charles M. Terry, Decatur, Ill., assignor to A. W. Cash Company, Decatur, Ill., a corporation of Delaware.



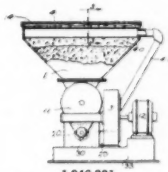
1,945,834
VALVE



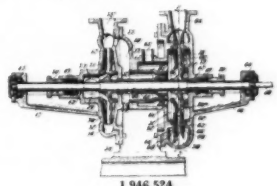
1,945,944
AIR CONDITIONING SYSTEM AND APPARATUS THEREFOR

1,945,944. Air Conditioning System and Apparatus Therefor. Frank T. Leilich and Robert K. Leilich, Baltimore, Md., assignors by mesne assignments to William W. Varney, Baltimore, Md.

1,946,201. Automatic Coal Burner. William Barton Eddison, Ardsley on Hudson, N. Y., assignor, by mesne assignments, to Henry M. Brooks, New York, N. Y., William Tudor Gardiner, Augusta, Maine, and Richard Kingsley Hawes, Fall River, Mass., as trustees.

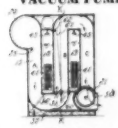


1,946,201
AUTOMATIC COAL BURNER



1,946,524
VACUUM PUMP

1,945,906
THREADING DIE AND HOLDER



1,945,553
AIR CONDITIONING UNIT

1,946,524. Vacuum Pump. David N. Crosthwait, Jr., Marshalltown, Iowa, assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.

1,945,906. Threading Die and Holder. Oscar E. Koehler, Greenfield, Mass., assignor to Greenfield Tap & Die Corporation, Greenfield, Mass., a corporation of Massachusetts.

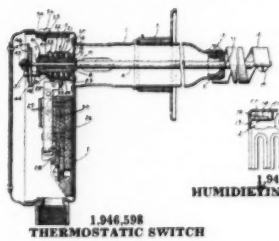
1,945,553. Air Conditioning Unit. Edmund H. Koan, Indianapolis, Ind.

1,946,598. Thermostatic Switch. Daniel G. Taylor, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

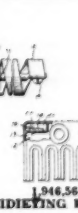
1,946,564. Humidifying Radiator. Nicholas Bartlett, Syracuse, N. Y.

1,949,320. Air Moistener. John H. Mitchell, Bronxville, N. Y.

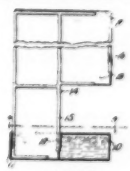
1,946,676. Steam Heating System. Vincent Eaton, East Cleveland, Ohio.



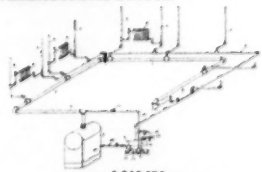
1,946,598
THERMOSTATIC SWITCH



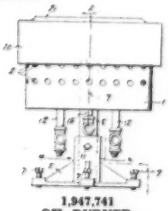
1,946,564
HUMIDIFYING RADIATOR



1,949,320
AIR MOISTENER



1,946,676
STEAM HEATING SYSTEM



1,947,741
OIL BURNER

YOUR SERVICE IS VITAL

TO THE SUCCESS OF THIS

BUILDING CAMPAIGN

WE ARE CO-OPERATING

BETTER HOUSING PROGRAM

FEDERAL HOUSING ADMINISTRATION

SPECIFY

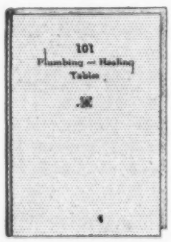
DEVLIN fittings
FRETZ nipples

THOMAS DEVLIN MANUFACTURING CO., INC.
BURLINGTON, N. J.

for your trade library

TABLE OF ESTIMATED RADIATION

By Harry B. Perrigo. Gives you the radiation required for heating rooms of any size. There are two tables, one for steam, the other for hot water. All you need is the amount of glass surface, exposed wall, and cubical contents and you can instantly find the radiation required. It comes in a convenient pocket size, 4½x7. The tables are printed in two colors on heavy celluloid making 4 pages, substantially bound. Price postpaid $1.00.



101 PLUMBING AND HEATING TABLES

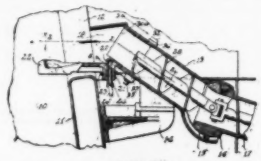
This book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 48 pages. Size 8x11, bound in cloth. Price postpaid $1.

DOMESTIC ENGINEERING CO.
Book Department
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

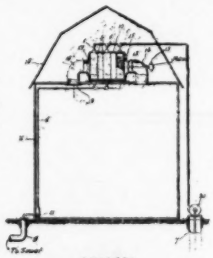
1,947,741. Oil Burner. John F. Ryan, Cadillac, Mich.

1,947,684. Stoker Mechanism. Edwin Archer Turner, New York, N. Y., assignor to The Standard Stoker Company, Incorporated, a corporation of Delaware.

1,947,998. Pipe Coupling. Adolfo Mazza, Genoa, Italy, assignor to Johns-Manville Corporation, New York, N. Y., a corporation of New York.

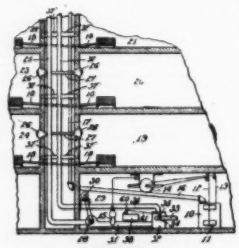

1,947,684
STOKER MECHANISM

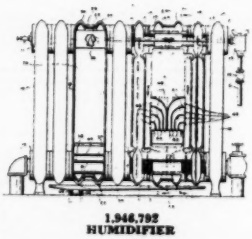
1,947,998
PIPE COUPLING


1,944,992
AIR CONDITIONER

1,944,992. Air Conditioner. Samuel C. Miller, Louisville, Ky.

1,946,903. Humidity and Temperature Control. George H. Fisher, Wabash, Ind., assignor to Minneapolis-Honeywell Regulator Company, Wabash, Ind., a corporation of Delaware.


1,946,903
HUMIDITY AND TEMPERATURE CONTROL

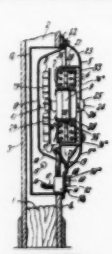

1,946,792
HUMIDIFIER

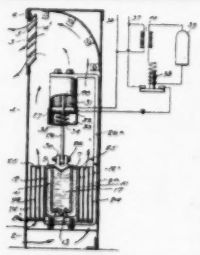
1,946,792. Humidifier. Daniel Handelan, Minneapolis, Minn.

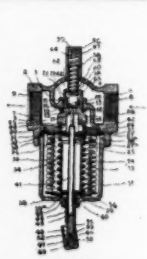
1,948,759. Electric Heater. George D. Hoffman, Pasadena, Calif., assignor, by mesne assignments, to Thermador Electrical Manufacturing Company, Los Angeles, Calif., a corporation of California.

1,948,647. Air Conditioning Apparatus. Thomas Bayard Brunt, Philadelphia, Pa.

1,946,882. Valve. Phillip Sherman Russel, Detroit, Mich., assignor to Detroit Lubricator Company, Detroit, Mich., a corporation of Michigan.

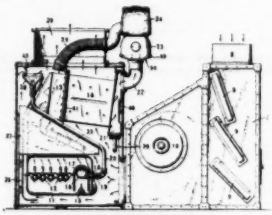

1,948,759
ELECTRIC HEATER


1,948,647
AIR CONDITIONING APPARATUS

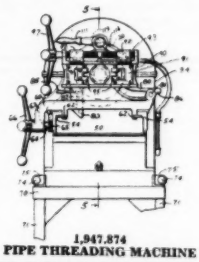

1,946,882
VALVE

1,948,156. Air Conditioning Unit. Carlyle M. Ashley, South Orange, and Vincent S. Day, Summit, N. J., assignors to Carrier Research Corporation, Newark, N. J., a corporation of New Jersey.

1,947,874. Pipe Threading Machine. Robert B. Pealer, Warren, Ohio, assignor to The Borden Company, Warren, Ohio, a corporation of Ohio.



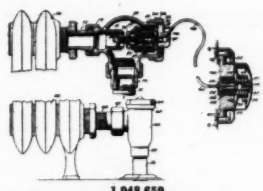
1,948,156
AIR CONDITIONING UNIT



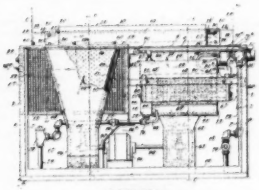
1,947,874
PIPE THREADING MACHINE

1,948,659. Thermostatic Radiator Valve. Jean V. Giesler, Knoxville, Tenn., assignor to The Fulton Sylphon Company, Knoxville, Tenn., a corporation of Delaware.

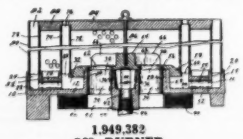
1,949,379. Ventilating and Air Treating Apparatus. Allston Sargent, Bronxville, N. Y., assignor to Campbell Metal Window Corporation, New York, N. Y., a corporation of Maryland.



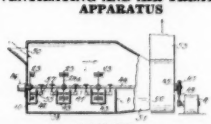
1,948,659
THERMOSTATIC RADIATOR VALVE



1,949,379
VENTILATING AND AIR TREATING APPARATUS



1,949,382
OIL BURNER

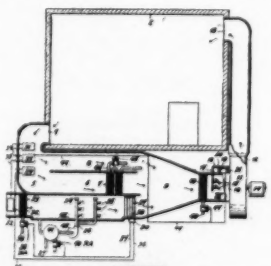


1,948,277
AIR CONDITIONER AND HUMIDIFIER

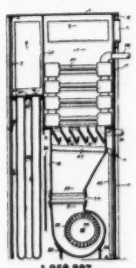
1,949,382. Oil Burner. William Edward Taft, Athol, Mass., assignor to Taft Oil Burner Company, Athol, Mass., a corporation of Massachusetts.

1,948,277. Air Conditioner and Humidifier. Raymond L. Payne and Glen E. Marica, Denver, Colo.

1,949,735. Apparatus for Ventilating and Conditioning Buildings. Claude A. Bulkeley, Buffalo, N. Y., assignor to Niagara Blower Company, Buffalo, N. Y., a corporation of New York.



1,949,735
APPARATUS FOR VENTILATING AND CONDITIONING BUILDINGS



1,950,807
AIR CONDITIONING APPARATUS

New
ARMSTRONG BROS.
GENERAL CATALOG B-35
240 Pages of Quality Tools
*Indicates New Lines
ARMSTRONG
TOOL HOLDERS —for Lathes, Planers, Shapers
*TURRET LATHE TOOLS
HIGH SPEED STEEL
*CARBIDE CUTTERS
LATHE DOGS
CLAMPS
RATCHET DRILLS
OPEN END WRENCHES
*SOCKET WRENCHES
*RATCHET WRENCHES
*STAR DRILLS
MACHINE SHOP SPECIALTIES
ARMSTRONG BROS.
STOCKS AND DIES
*RECEDING PIPE THREADERS
PIPE CUTTERS
*PIPE REAMERS
PIPE VISES
PIPE TONGS
PIPE WRENCHES
Wr ite for your copy.
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Avenue, Chicago
New York Sales Office:
109 Lafayette Street

NO-SOL COPPER FLOATS
4"x5" Oval Float
QUALITY MERCHANDISE
does most to stimulate
CONSUMER CONFIDENCE
Incorporated 1907
THE AYLING & REICHERT CO.
3047 NORTH ERIE STREET TOLEDO, OHIO

The ABINGDON-ARDSLEY
From every standpoint . . . design . . . construction . . . materials . . . workmanship . . . this beautiful ABINGDON-ARDSLEY Syphon Jet Combination appeals to your customers. Every inch a quality fixture, the ABINGDON-ARDSLEY is made to provide the most satisfactory service. The large trapway . . . the exceptionally quiet, thoroughly effective flush . . . the paneled shelf cover . . . these are but a few of the many advantageous features of the ABINGDON-ARDSLEY. This fixture is ideally suited to modernizing programs. Write for complete details.
BETTER HOUSING PROGRAM
ABINGDON SANITARY MFG. CO., Abingdon, Illinois

IN PERFORMANCE
SECOND to NONE
Daily, in countless installations where the service requirements are severe, DART Unions are proving conclusively that they are second to none in performance. Because of the two bronze, ball-ground, wide-bearing seats which are swedged into tough malleable iron pipe ends you're assured a long life of leak-proof, corrosion-free service.
E. M. DART MFG. CO., Providence, R. I.
The Fairbanks Company, Sales Agents
Canadian Factory,
Dart Union Company, Ltd., Toronto, Canada
Dart Unions

THE "MODERN" RANGE BOILER

Pat. No. 1853949

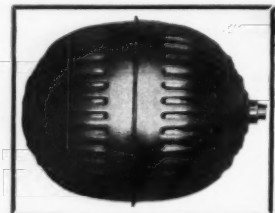
30, 40 and 50 Gallons
200, 250 and 300 lb. Test

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

Sold Through Wholesalers Only

HAYES MFG. CO., Paterson, N. J.

Established 1870



Thousands Accept No Substitute for REICHERT RUBBER TANK BALLS AND SOLDERLESS FLOATS

Made of Best Materials	Thoroughly Inspected and Tested	Assure Long, Satisfactory Service	A Profitable Line

Leader Tank Balls seat perfectly every time.

Reichert Floats are made of heavy gauge sheet copper, two sections seamed in securely. The reinforced spud makes them the strongest on the market. They stand up even when service is particularly severe, such as in factories, schools and public buildings.

NRA

THE REICHERT FLOAT & MFG. CO.
2238 Smead Ave. Toledo, Ohio

NRA

• WARNOCK •

Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

JUST WHAT YOU NEED!

C & L TORCH 325

FOR USE ON

COPPER TUBING

Yes, there *is* a special torch for soldering copper tubing, and Clayton & Lambert makes it. No. 325 delivers an enormous 10-inch blue blast of great heat intensity. Size of flame can be perfectly controlled for smaller size fittings. Burns in any position. At all jobbers. Write for descriptive folder.

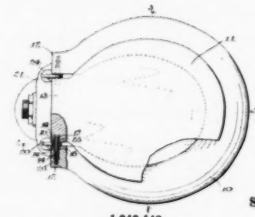
Clayton & Lambert Mfg. Co.
Detroit, Michigan

MAKERS OF WORLD'S LARGEST-SELLING FIREPOTS

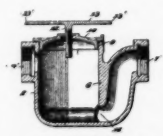
1,950,807. Air Conditioning Apparatus. Clark T. Morse and Edward L. Hogan, Detroit, Mich., assignor to American Blower Corporation, Detroit, Mich., a corporation of Delaware.

Plumbing Department

1,949,442. Closet Seat. Eugene A. Zundel, Chicago, Ill., assignor by mesne assignments, to Seats Inc., Chicago, Ill., a corporation of Illinois.



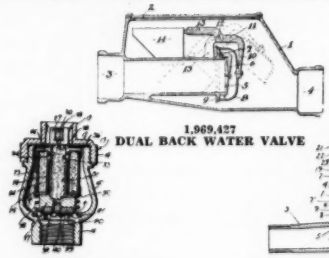
1,949,442
CLOSET SEAT



1,951,253
SANITARY AND SELF-CLEANSING TRAP

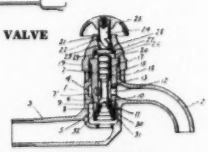
1,951,253. Sanitary and Self-Cleansing Trap. Harry C. Odenkirk, Cleveland, Ohio.

1,969,427. Dual Back Water Valve. Louis J. Sander, Buffalo, N. Y.



1,969,427
DUAL BACK WATER VALVE

1,951,095
PRESSURE REDUCING VALVE



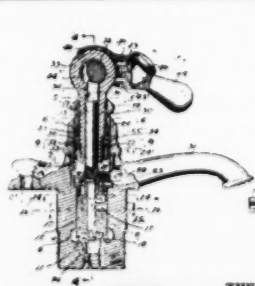
1,950,749
SELF CLOSING ALL METAL FAUCET

1,950,749. Self-Closing All Metal Faucet. James C. Ross, Seattle, Wash.

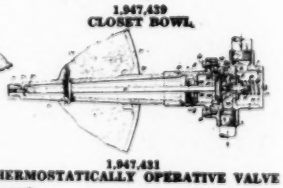
1,191,095. Pressure Reducing Valve. James J. Lawler, Mount Vernon, N. Y., assignor to Lawler Automatic Controls, Inc., Mount Vernon, N. Y., a corporation of New York.

1,945,645. Hot and Cold Water Mixing Valve. Daniel E. Kumpman and John E. Kumpman, Dover, N. J.

1,947,439. Closet Bowl. Raymond E. Crane and David E. Gulick, Ford City, Pa.



1,947,439
CLOSET BOWL



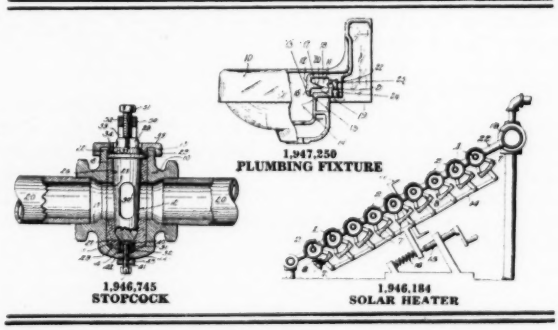
1,947,431
THERMOSTATICALLY OPERATIVE VALVE

1,945,249
COLD WATER MIXING VALVE

1,947,431. Thermostatic Operative Valve. Robert J. Doughtery, Ambler, Pa., assignor to John Wood Manufacturing Company, Conshohocken, Pa., a corporation of Pennsylvania.

1,946,745. Stop Cock. Randolph Jennings Johnston, Fresno, Calif.

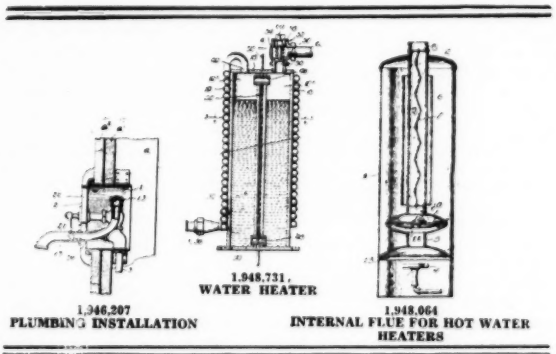
1,947,250. Plumbing Fixture. Samuel W. Davison and Morgan J. Thompson, Milwaukee, Wis.



1,946,184. Solar Heater. Charles Greeley Abbot, Washington, D. C.

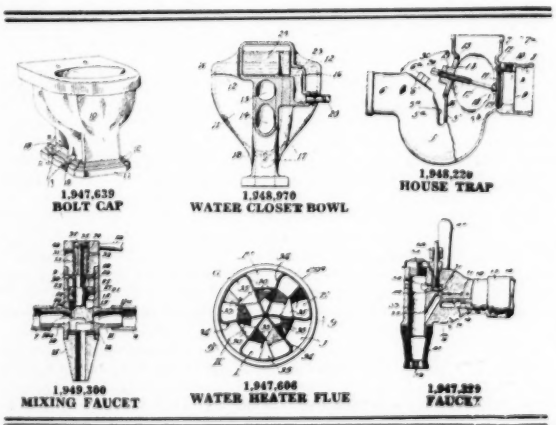
1,946,207. Plumbing Installation. George W. Haire, Chicago, Ill.

1,948,731. Water Heater. Henry Olin, Minneapolis, Minn.



1,948,064. Internal Flue for Hot Water Heaters. William G. Carter, Monrovia, Calif., assignor to Day & Night Water Heater Co., Ltd., a corporation of California.

1,947,639. Bolt Cap. George Brain, Tiffin, Ohio, assignor to Standard Sanitary Manufacturing Company, a corporation of New Jersey.



MADE FOR LONG RUGGED SERVICE

Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel

The Worcester line is complete. Catalog gladly sent upon request.

NRA

WORCESTER BRUSH and SCRAPER CO.

10 AUSTIN STREET :: WORCESTER, MASS.

ENAMEL WARE PLANT

Iron City Sanitary Mfg. Co.

Receiver's Sale

Modern, fully equipped enamelware plant of 17 buildings. Located at Zelienople, Butler County, Pa., on a continuous tract of 17 acres, on the Baltimore & Ohio Railroad main line between Pittsburgh and Chicago. Buildings include box factory; 2 foundries; power house containing two 800 h.p. boilers; brushing room; 2 enamel furnaces; fitting and decorating department; two-story mill building equipped with 4 smelters; machine and pattern shop; blacksmith shop; pattern storage building; office building; 3 large warehouses. General equipment includes 6 electric cranes of five-ton capacity; 3 cupolas; one mile of standard gauge railroad tracks. The plant is capable of producing at least half of its own power requirements, has its own heating unit and its own water tower. Easy access to rail and motor truck. Skilled labor available at low cost.

Sale at Bar Association Rooms, 9th floor City-County Building, Pittsburgh, Penna., Thursday, November 15, at 12:00 noon, subject to confirmation of the Allegheny County Common Pleas Court. Title clear of all liens and encumbrances. Minimum price $200,000. Receiver reserves the right to reject any and all bids. Terms: 10 per cent cash or certified check with bid. Balance upon confirmation by the court.

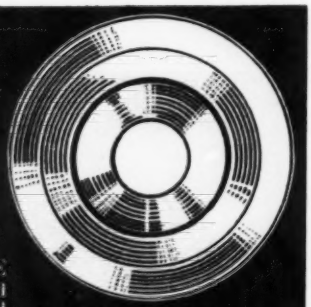
Further information can be obtained from the receiver or from his attorney, Donald C. Anderson, 1402 Commonwealth Bldg., Pittsburgh, Pa.

WILLIAM A. MAGEE, *Receiver*
1807 Law & Finance Bldg.,
Pittsburgh, Pa.

for More
SPEED
EASE
WEAR

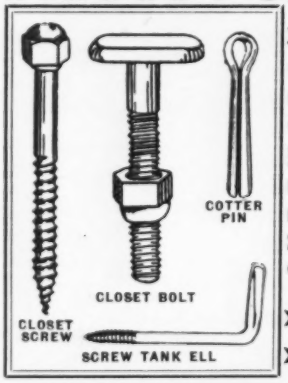
use genuine TRICROME cutter wheels "The silvered wheel with the brilliant red hub."

For Barnes, Saunders, Crown as well as Trimo type cutters.



TRIMONT MFG. CO., INC.
ROXBURY (BOSTON), MASS.
who have made TRIMO TOOLS for 50 Years

HINDLEY'S ★ PLUMBERS' ★ SPECIALTIES



THEY'RE SMALL BUT THEY PLAY A BIG PART

. . . in building business for the plumber. Stock up now with HINDLEY'S Plumbers' Specialties and be prepared for every job that will find its way into your shop due to the F. H. A. modernizing program. You can't go wrong with HINDLEY'S.

HINDLEY MFG. CO.
VALLEY FALLS, R. I.

BARRETT
PLUMBER'S Rough BRASS Goods

The Standard of Comparison

Compression Stops
Compression Stops and Wastes
Ground Key Line
Waterworks Brass Goods

THE CLEVELAND BRASS MANUFACTURING COMPANY
4606-4700 HAMILTON AVENUE CLEVELAND, OHIO

USE THE COUPON
on
PAGE 32
to get your copy of
JONES' ESTIMATING TABLES
on
AIR REQUIREMENTS AND DUCT SIZES
FOR HEATING AND AIR CONDITIONING

1,948,970. Water Closet Bowl. Francis T. Meyer, Montclair, N. J., assignor to The Meyer-Sniffen Company, New York, N. Y., a corporation of New York.

1,948,220. House Trap. Edward Kennedy, New York, N. Y.

1,949,300. Mixing Faucet. Emil H. Fitter, New York, N. Y.

1,947,606. Water Heater Flue. Simon J. Lonergan, La Porte, Ind., assignor to Bastian-Morley Company, La Porte, Ind., a corporation of Indiana.

1,947,329. Faucet. William C. Buttner, Chicago, Ill., assignor to The Bastian-Blessing Company, Chicago, Ill., a corporation of Illinois.

Lucien L. Carr is now secretary of the Master Plumbers' Association of Omaha with offices at 220 Lyric Building, 19th and Farnam Streets. The other officers of the Omaha Association are: E. Yousem, president; Leo. N. Swanson, vice-president; Leo Baroch, treasurer. The directors are: Wm. J. Maloney, John J. Ostronic, C. L. Rodstrom, D. Uldin; ex-officio: John H. Martig.

Statement of Ownership and Management of "Domestic Engineering" for October 1, 1934

The following is a statement of ownership, management, etc., as required by the Act of Congress of March 3, 1933, of "Domestic Engineering," published monthly at Chicago, Illinois, for October 1, 1934.

State of Illinois, County of Cook, ss.: Before me, a Notary Public in and for the state and county aforesaid, personally appeared D. J. Hansen, who, having been duly sworn according to law, deposes and says that he is the business manager of "Domestic Engineering," and that the following is, to the best of his knowledge and belief, a true statement of the ownership and management of the aforesaid publication, for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, O. T. Carson, Chicago, Illinois.
Editor, R. V. Sawhill, Chicago, Illinois.
Managing Editor.
Business Manager, D. J. Hansen, Chicago, Illinois.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Domestic Engineering Company, 1900 Prairie Avenue, Chicago, Illinois. Stockholders: O. T. Carson, Chicago; E. D. Winslow, New York City, N. Y.; R. Herlov, Chicago; C. L. Davis, Chicago; E. G. Hutchison, Chicago; D. M. Kenney, Cleveland, Ohio; D. J. Hansen, Chicago.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

D. J. HANSEN,
Business Manager.

Sworn to and subscribed before me this 4th day of October, 1934.

L. M. DIXON.
Notary Public

[My commission expires September 14, 1938.]
(SEAL)

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SALESMEN, COMMISSION, NEW PATented adjustable China Tank Covers, selling jobbers, all territories except New York City. State territory, lines, references. ANCHOR PRODUCTS MANUFACTURING COMPANY, 30 Church Street, New York.

WANTED: EXPERIENCED SALESmen to sell plumbers' brass goods and heating specialties in Westchester County and Connecticut. Must have car. Will pay salary and commission. Good proposition for right party. Address Key 106-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALESMAN TO SELL ESTABLISHED high-grade line of plumbers' brass goods and specialties to plumbers. State full particulars in first letter. Address Key 103-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Situations Wanted

CAPABLE PLUMBING AND HEATING sales engineer, estimator, supervisor, inspector, shipper and cost clerk wants position on road or otherwise, 30 years' experience, go anywhere. Address Key 102-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Representatives Wanted

A REAL OPPORTUNITY OFFERED to representatives with the following and confidence of the better jobbers and wholesalers to present the outstanding patented One Piece Toilet Seat in conjunction with their present line. Accepted by leading jobbers everywhere. Of proven merit and constantly increasing sales. Price competition eliminated. Detailed replies invited in confidence. Atlantic Coast territories. BONALITE, 225 West 34th St., New York City.

RADIATOR SALES OPPORTUNITY. Strongly established manufacturer. Outstanding new advanced type heating radiator. High grade, experienced sales representatives who can operate upon straight commission basis should write for complete particulars. State qualifications fully. Address Post Office Box 1222, Pittsburgh, Pa.

SALES REPRESENTATIVES: COVERing legitimate plumbing trade in every state. Protected territory on sale of Patented Valve. Manufacturers' representative will be considered. Give experience and reference. Address Key 992, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Wanted to Buy

WANTED: SURPLUS STOCK OF plumbing and heating supplies—soil or steel pipe — brass — enamelware — couplings — fittings — any quantity. Western Plbg. & Htg. Supply Co., 3993 Grand River Ave., Detroit, Mich.

Lines Wanted

PLUMBING SPECIALTY CONCERN selling exclusively to the plumber, organized eighteen months, wants prices and description of articles direct from manufacturer or agent. Address Key 104-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Books for Your Trade Library

101 PLUMBING AND HEATING TABLES. The book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 48 pages. Size 8x11, bound in cloth. Price postpaid $1.00.

500 PLAIN ANSWERS TO DIRECT QUESTIONS ON STEAM, HOT WATER, VAPOR AND VACUUM HEATING. By Alfred G. King. Covers the science and general practice of heating including modern systems of modified heating explained in a series of plain questions and answers with tables, rules and general information. It makes a splendid text-book for the apprentice and an ideal reference book for master fitters. Has 253 pages, 6x9, bound in cloth. Price postpaid $2.50.

OIL BURNER HEATING — DISCUSSES oil burner heating problems from the sale of the job to the operating installation. Every chapter in the book is built upon direct questions asked by heating men. Testing problems worked out show what should be done to test efficiency of installation, how to compare cost of oil or gas heating, how to find heat losses, how combustion chambers are built, what to do when changing from gas installation to oil burner, how to figure oil consumption for year, etc. Can be used on practically any oil burner installation, and much of the information it contains applies also to gas burning boilers and to stokers. 184 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

QUESTIONS AND ANSWERS ON THE PRACTICE AND THEORY OF SANITARY PLUMBING. By R. M. Starbuck.
Vol. 1. Drainage and Venting.....$2.00
Vol 2. Hot Water Supply and Circulation 2.00
Vol. 3. Practical Wrinkles 2.00
Vol. 4. Drainage, Venting, Septic Tanks 2.00
Four Volumes 7.00
These four books are among the most popular in the trade. They deal in a thoroughly dependable way with matters that come up right along. They are excellent for journeymen for daily use and while preparing for examinations. The author, Mr. Starbuck, is an outstanding authority. And he has the ability to put what he knows on paper so that it is easily understood. These books are well illustrated throughout with good drawings. It's a set of books that every plumber should have in his library. Size 6x9, bound in cloth, price postpaid, per volume $2.00; four volumes for $7.00.

DOMESTIC ENGINEERING
Books Sent Parcel Post Prepaid
1900 PRAIRIE AVENUE, CHICAGO

Business Opportunities

ASSOCIATE WANTED FOR METROpolitan New York concern capable of investing substantial capital for expansion in manufacturing and sales distribution of heating, plumbing, power, oil burner supplies and air conditioning apparatus. An excellent opportunity for the right party. Address Key 105-D, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Miscellaneous

KO HANDY-STICK

The pipe-joint cement in stick form! No messy brushes or buckets; rub on pipe threads only and make up. Carried in pocket or kit, always ready instantly. Ask your jobber for KO. If he cannot supply you, send his name and 75c for a dozen sticks.

EAST ORANGE CHEMICAL CO.
23 Melrose Ave., East Orange, N. J.

Job Tickets, Time Sheets

Contract Blanks, Estimate Sheets and other printed forms for plumbers our specialty. Reasonable prices and prompt attention to inquiries and orders. Write for samples.

LOUIS FINK & SONS CO.
School Building, Laurel Springs, N. J.

LEARN PLUMBING

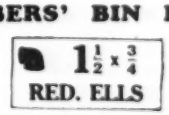
At a liberally endowed and well established trade school. Founded in 1907. Practical shop instruction. Tuition fee $45.00 per year. Free catalog sent on request. Enroll now.

THE DAVID RANKEN, JR.
SCHOOL OF MECHANICAL TRADES
Finney, Newstead and Cook Aves.
ST. LOUIS, MO.

PATENTS AND TRADE MARKS

Patent and profit by your inventions. Protect your most valuable assets. Expert personal service. Lester L. Sargent, Registered Patent Attorney, 1115 K Street, N. W., Washington, D. C.

PLUMBERS' BIN LABELS



Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop." Haddon Bin Label Co., Haddon Heights, N. J.

Index to Advertisers

November, 1934

Abingdon Sanitary Mfg. Co. 157
Allen-Bradley Co..... 27
American Brass Co..... 15
American Radiator Company 28
American Sanitary Mfg. Co.130
Ames Pump Co., Inc..... 98
Anderson Manufacturing Co. 101
Armstrong Bros. Tool Co..157
Automatic Products Co....106
Ayling & Reichert Co.....157

Badger & Sons Co., E. B...100
Barber-Colman Company..109
Barnes & Jones, Inc.....110
Beaton & Cadwell Mfg. Co., The 92
Bell & Gossett Co.....108
Bridgeport Brass Co..... 26
Burnham Boiler Corp..... 24

Cash Valve Mfg. Corp., A. W. 105
Century Electric Co.....104
Chase Brass & Copper Co., Inc. 62
Chicago Faucet Co..... 5
Clayton & Lambert Mfg. Co. 158
Cleveland Brass Mfg. Co..160
Consolidated Brass Co.....150
Crane Co. 30

Dahlquist Mfg. Co.....143
Dart Mfg. Co., E. M.....157
Decatur Pump Co.....144
Devlin Mfg. Co., Thos.....156
Dole Valve Co., The.89 and 90

Eagle-Picher Lead Co..... 14
Essex House 112
Excelso Products Corp.....107

Fedders Mfg. Co..... 13
Fitzgibbons Boiler Co., Inc. 21
Fretz-Moon Tube Co.....139

General Electric Company.164
General Fittings Co..... 97
Gerstein & Cooper Co..... 96
Gorton Heating Corp.....113
Grand Haven Brass Foundry 153

Harvey-Whipple, Inc.....108
Hayes Mfg. Co.....158
Hays Mfg. Co.....143
Hindley Mfg. Co.....160
Hoffman Specialty Co..... 23
Hotstream Heater Co.....114

Imperial Brass Mfg. Co...128
International Nickel Co.... 35

Janette Mfg. Co.....107
Jarecki Mfg. Co.....132
Jones & Laughlin Steel Corp.....Inside Front Cover

Kainer & Co.....115
Kennedy Valve Mfg. Co...148
Kitson Co. 109
Koven & Bro., Inc., L. O...124

Lavelle Rubber Co.....150
Leland Electric Co., The...113
Linde Air Products Co., The 22
Liquid Veneer Corp..... 144

Magee, William A., Receiver for Iron City Sanitary Mfg. Co.....159
Maid-O'-Mist, Inc..... 18
McDonald Mfg. Co., A. Y... 33
McDonnell & Miller.....116
Mercoid Corp., The.....102
Milwaukee Valve Co..... 95
Minneapolis-Honeywell Regulator Co. 20
Modine Mfg. Co..... 93
Morency-Van Buren Division, Scovill Manufacturing Co. 29
Mueller Brass Co..... 11
Mueller Co. 16
Myers & Bro. Co., F. E..... 36

National Regulator Co.....25 and 110
National Tube Company... 67
New Jersey Stoker Corp...102
Northern Indiana Brass Co. 8
Nu-Way Corp. 111
Nye Tool & Machines Works 148

Ohio Brass Co., The.....111

Penberthy Injector Co..... 61

Reichert Float & Mfg. Co..158
Republic Steel Corp.....Inside Back Cover
Revere Copper & Brass, Inc. 17
Ridge Tool Co., The..... 31
Rundle-Spence Co.....154
Russell & Co., W. A...6 and 7

Sarco Co., Inc.....127
Schleicher, Ed. 113
Scovill Mfg. Co..... 10
Scovill Mfg. Co., Morency-Van Buren Division..... 29
Silent Glow Oil Burner Corp., The 87
Slyker 113
Smooth-On Mfg. Co.....146
South Chester Tube Co....145
Speakman Co..... 9
Standard Sanitary Mfg. Co.....64 and 65
Stanley Electric Tool Co., The 106
Streamline Pipe & Fittings Co., Division Mueller Brass Co..... 11

T. D. Specialty Corp.....110
Thrush & Co., H. A..... 19
Trimont Mfg. Co., Inc.....160

Uniflow Manufacturing Co.154
Union Carbide and Carbon Corp. 22
Union Coil & Mfg. Co.....113

Vogel Co., Jos. A..... 3

Walworth Company 163
Warnock Mfg. Co.....158
Waterfilm Boilers, Inc....103
Watts Regulator Co..... 72
Wayne Oil Burner Corp...105
Whiting Corp. 94
Worcester Brush & Scraper Co. 159

Youngstown Sheet & Tube Co. 12

POSITIVE VALVE IDENTIFICATION *at all times assured*

For the convenience of Walworth Valve users, we are now supplying all Walworth Quality Valves with an aluminum marking plate, giving the figure number of the valve, the plate being placed directly under the hand wheel nut, as shown in photograph. The valve illustrated is the Walworth Fig. 95, with the now famous lock-on slip-off disc holder, which was originated and perfected by Walworth to save time and trouble in changing discs. It also has the union bonnet connection recognized by valve users as being the best type of bonnet connection.

NRA WE DO OUR PART

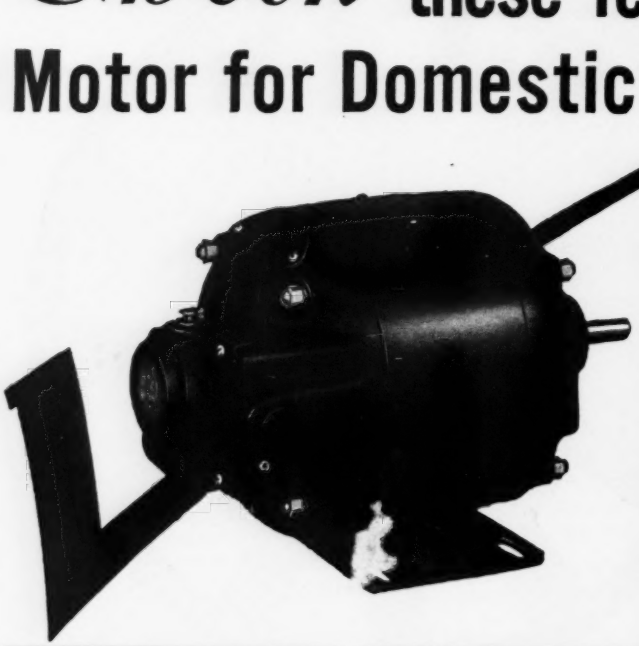
WALWORTH

VALVES FITTINGS and TOOLS
Backed by 91 Years' Service

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT THE WORLD

Check these features of the G-E Motor for Domestic Water Systems



Compare it, point for point . . . See for yourself why it's the greatest value ever offered for driving pumps

1 HIGH STARTING TORQUE—breaks away heavy loads.	**2** LOW STARTING CURRENT—starts directly across the line.	**3** ABILITY to operate under low-voltage conditions.	**4** HIGH maximum torque. Starting, pull-up, and maximum torques are excellent.	**5** RUNS COOL—has excellent ventilation, the result of advanced design.	**6** DESIGNED for maximum dependability and long, "care-free" operation.	**7** DRIP-PROOF—protected from falling dirt and water.	**8** EXCELLENT commutation—an important factor in successful motor operation.
9 LONG brush life. Here, too, quality materials contribute to minimum maintenance.	**10** COMPLETE LUBRICATION SYSTEM—oil throwers, returns, and filters.	**11** MINIMUM ATTENTION TO LUBRICATION—large-capacity, wool-packed bearings.	**12** END-PLAY SILENCERS—built into the motor.	**13** PERMANENTLY CURED WINDING TREATMENT—will not soften under heat.	**14** WINDING TREATMENT RESISTS water, oil, and mild acids—suitable for use even in tropics.	**15** HEAVY STEEL BASE—gives full support to motor.	**16** MOUNTING DIMENSIONS INTERCHANGEABLE with G-E odd-frequency, polyphase, and direct-current motors.
17 ROTATION changed by brush shift—a valuable aid to convenience.	**18** CAN BE EASILY reconnected from 110 to 220 volts, or vice versa.	**19** PERFORMANCE matches requirements of pumps, compressors, and industrial applications.	**20** BUILT to withstand heavy service under adverse conditions.	**21** BASE SLOTS provide quick, easy, and simple adjustment of belt drives.	**22** PRECISION MACHINING on air gap and bearing journals contributes to uniform performance and long life.	**23** SIMPLE, STURDY, noncorrodible brush mechanism, with constant spring tension.	**24** EXTRA-HEAVY SHAFT, of highest-grade axle steel.
25 WELDED-STEEL CONSTRUCTION combines strength, rigidity, and light weight.	**26** PROVISION FOR EASY INSPECTION of commutator and brushes.	**27** ABILITY to handle high momentary overloads.	**28** AVAILABLE in drip-proof, totally enclosed, or splash-proof designs.	**29** AVAILABLE in 1/6-, 1/4-, and 1/3-hp. ratings, Type RSA; 1/2-hp. and larger, Type SCR.	**30** AN EARNED REPUTATION—Types RSA and SCR are the outstanding single-phase, high-torque motors.	**31** BACKED by General Electric's long experience in manufacturing many millions of fractional-horsepower motors.	**32** BUILT BY GENERAL ELECTRIC. Address General Electric, Dept. 6-201, Schenectady, N. Y.

070-59

GENERAL ELECTRIC